SERVICE MANUAL

Model Name : HD81/HD81-LV

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Date	Version	Description
2006/08/14	V1.0	Initial Issue
2007/04/20	V2.0	Add HD81-LV Modify Perface,Chapter 4,Chapter 5
2007/05/11	V3.0	Modify chapter 4 & 5
2007/05/18	V4.0	Modify chapter 1
2007/11/23	V5.0	Modify chapter 5

HD81&HD81-LV Comparison List

HD81		HD81-LV	
70.85H01G001	ASSY BASE HOUSING MODULE HD81	70.87T01G001	ASSY BASE HOUSING MODULE HD81-
75.85H09G001	BUY ASSY PRE-ELEVATOR RIGHT HD	75.87T06G001	BUY ASSY PRE-ELEVATOR RIGHT HD
75.85H03G001	BUY ASSY PRE-ELEVATOR LEFT HD8	75.87T01G001	BUY ASSY PRE-ELEVATOR LEFT HD8
70.83C07G001	ASSY ELEVATOR FOOT RIGHT MODUL	70.87T05G001	ASSY ELEVATOR FOOT RIGHT MODUL
51.83C21G001	ELEVATOR FOOT PC+ABS EP910	51.83C21G011	ELEVATOR FOOT PC+ABS BLACK HD8
70.83C08G001	ASSY ELEVATOR FOOT LEFT MODULE	70.87T06G001	ASSY ELEVATOR FOOT LEFT MODULE
51.83C21G001	ELEVATOR FOOT PC+ABS EP910	51.83C21G011	ELEVATOR FOOT PC+ABS BLACK HD8
75.85H04G001	BUY ASSY BASE HOUSING HD81	75.87T02G001	BUY ASSY BASE HOUSING HD81-LV
70.85H02G001	ASSY OPTICAL ENGINE MODULE HD8	70.87T09G001	ASSY OPTICAL ENGINE MODULE HD8
70.85H12G001	BUY ASSY OPTICAL MODULE HD81	70.87T10G001	ASSY OPTICAL MODULE HD81-LV
70.85H07G001	ASSY COLOR WHEEL MODULE HD81	70.87T11G001	ASSY COLOR WHEEL MODULE HD81-L
23.85H19G101	UNAXIS 56mm	23.87T19G001	56MM CW 5 SEGMENTS RGBCY FOR H
52.85H11G001	SARCON GR-Hm	52.85H12G001	ENGINE BASE RUBBER HD81
75.85H13G001	BUY ASSY REAR COVER HD81	75.87T07G001	BUY ASSY REAR COVER HD81-LV
75.85H08G001	BUY ASSY RIGHT COVER HD81	75.87T05G001	BUY ASSY RIGHT COVER HD81-LV

HD81		HD81-LV	
70.85H06G001	ASSY TOP COVER MODULE HD81	70.87T03G001	ASSY TOP COVER MODULE HD81-LV
70.85H14G001	ASSY KEYPAD MODULE HD81	70.87T04G001	ASSY KEYPAD MODULE HD81-LV
51.85H18G021	KEY PAD BUTTON PEARL WHITE HD8	51.85H18G031	KEY PAD BUTTON PEARL BLACK HD8
75.85H06G001	BUY ASSY TOP COVER HD81	75.87T03G001	BUY ASSY TOP COVER HD81-LV
75.85H07G001	BUY ASSY LEFT COVER HD81	75.87T04G001	BUY ASSY LEFT COVER HD81-LV
70.85H16G001	HD5000 VEDIO BOX FOR HD81	70.87T08G001	HD5000 VEDIO BOX FOR HD81-LV
80.85H06G001	PCBA CONNECTOR-2 For HD5000	80.87T06G001	PCBA CONNECTOR-2 For HD81-LV
61.R0104G021	FRONT PANEL(LEFT) ALUMINUM "AN	61.R0104G041	FRONT PANEL(LEFT) ALUMINUM "AN
80.85H05G001	PCBA MAIN BOARD FOR HD5000	80.87T05G001	PCBA MAIN BOARD FOR HD81-LV
39.85H18G001	FW 24LC02 EDID CODE FOR	39.87T18G001	FW 24LC02 EDID CODE FOR HD81-L
70.83C18G001	ASSY LAMP COVER MODULE EP910	70.87T07G001	ASSY LAMP COVER MODULE HD81-LV
51.83C06G001	LAMP COVER EP910	51.83C06G021	LAMP COVER BLACK HD81-LV
70.85H21G001	ASSY PCBA FORMAT BOARD MODULE	70.87T12G001	ASSY PCBA FORMAT BOARD MODULE
80.85H01G001	PCBA FORMATTER BOARD FOR HD81	80.87T01G001	PCBA FORMATTER BOARD FOR HD81-

Preface

This manual is applied to HD81/HD81-LV professional controller scaler and color management system. The manual gives you a brief description of basic technical information to help in service and maintain the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Please send the product back to the distributor for repairing and do not attempt to do anything that is complex or is not mentioned in the troubleshooting.

Notice:

The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in future edition.

HD81/HD81-LV Service Manual
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Manual Version 2.0
P/N#36.85H06G001

Table of Contents

Introduction

Part I HD81/HD81-LV Projector

1-1 Highlight

No	Item	Description
1	Dimensions (L* W* H)	- Unit(controller processor box): 433 x 285 x 50 mm(not include hight of feet) - Unit(projector): 411 x 311 x 116 mm
2	Weight	- Unit(controller processor box): approx. 10 lbs - Unit(projector): approx. 10 lbs
3	Cooling System	- Advanced air flow - One fan/ two blowers (in projector) with low system acoustic noise level - Temperature control circuits with adaptive voltage control fan speed - Max touch temperature follows UL60950 regulation
4	Cabinet	- Provides space for PCB boards, fan, optical engine, power supply, UHP Lamp
5	Top Side	- Projection Lens Zoom Ring/Focus Ring/Lens Ring - Three LEDs (Lamp, Temp, Power) - Two elevator buttons
6	Rear Side	- One HDMI input connector (HDMI From Box) for linking to "video processor box" HDMI output connector (To projector) - One D-sub 9-pin RS-232 port (RS-232 From Box) for linking to projector RS-232 port (To projector) - One USB type-B port (SERVICE) for sequence code upgrade - One 3-pin AC power inlet port

No	Item	Description
7	Bottom	- Spec labels - Two elevator foot - Two adjuster foot - One lamp cover - Four-inlet vent - Three M4 holes for ceiling mount - Three M3 mounting holes for Navitar add-on lens
8	Right Side	- Outlet vent
9	Left Side	- Inlet vent
10	Lamp Housing	- Lamp could be changed by customer, but should follow the instructions as indicated in the user's manual
11	Tilt Angle	+5/-2 degree with elevator mechanism
12	Keystone correction	- ± 5° Vertical (according to Gunnum's scalar specification. Gen num does not support Horizontal keystone)
13	Resolution	- True 1920x1080 resolution, 10 bits colors for projection
14	Materials	- PC
15	Lamp Door Protection	- Lamp power supply shut off automatically when door open
16	Power Supply	- Universal AC 100--240V; 50 / 60 Hz with PFC input - Max. 465W - provide for Philips 300W 1.3 arc UHP E21.8 lamp at bright mode, 255W at ECO mode - provide for "projector" system power
17	Terminals	- One HDMI input connector (HDMI From Box) for linking to "video processor box" HDMI output connector (To projector) - One D-sub 9-pin RS-232 port(RS-232 From Box) for linking to projector RS-232 port (To projector) - One USB type-B port (SERVICE) for sequence code upgrade - One 3-pin AC power inlet port

No	Item	Description

18	Input Signal Spec.	- Analog RGB signal (PC)
		  Analog RGB 0.7Vp-p, 75 ohm
		  Analog RGB 1Vp-p, 75 ohm, Sync. signal
		  Separate TTL H,V Sync.
		  Composite TTL Sync.
		- Video signal
		  Composite video 1Vp-p, 75 ohm
		  S-video Luminance 0.714Vp-p, 75 ohm
		  Chrominance 0.286Vp-p, 75 ohm

19	System Controller	- De-interlace and Scalar: Gennum 10 bits GF 9351 scaler - Color adjust chip: High-end Jepico L006 10 bit Image Quality Enhancement LSI
20	Projection Lens	- F/ 2.6~2.82, f = 39.12~46.94 mm. 1.2X Zoomed Focal Lens. - Throw Ratio = 1.85 – 2.22:1 distance/width - Offset : 136%
21	Throw Distance	1.85 – 2.22:1 distance/width
22	Brightness	For HD81 - 1400 ANSI Lumens (Max.) - 1200 ANSI Lumens (Typical) - 1000 ANSI Lumens (Min.) For HD81-LV - 2,500 ANSI Lumens (Max.) - 1,800 ANSI Lumens-bright mode, 1,440 ANSI Lumens-ECO mode (Typical) - 1,440 ANSI Lumens (Min.)
23	Contrast	For HD81 - 7,000:1 full on/full off (with high contrast iris setting) - 4,500:1 full on/full off (Max.) - 3,500:1 full on/full off (Typical) - 2,700:1 full on/full off (Min.) For HD81-LV - 10,000 :1 full on/full off (with high contrast iris setting) - 3,600 :1 full on/full off (Max.) - 3,000 :1 full on/full off (Typical) - 2,400 :1 full on/full off (Min.)

No	Item	Description
24	Uniformity	For HD81 - 90% Japan standard (Max.) - 85% Japan standard (Typical) - 65% Japan Standard (Min.) For HD81-LV - 90% Japan standard (Max.) - 75% Japan standard (Typical) - 65% Japan Standard (Min.)
25	Temperature	- Operating: 5 -- 35°C - Storage: -20 -- 60°C

26	Maximum Humidity	- Operating:
		  5 -- 35°C, 80%RH (Max.), non-condensing
		- Storage:
		  -20 -- 60°C, 80%RH (Max.), non-condensing

27	Lamp Life	For HD81 - 1700 hours typical, 50% survival rate in normal mode - 2200 hours typical in Eco mode For HD81-LV - 1250 hours typical, 50% survival rate in bright mode - 1600 hours typical in Eco mode

28	Altitude	- Operating
		  0~2,500 ft 5°C~35°C
		  2,500~5,000 ft 5°C~30°C
		  5,000~10,000 ft 5°C~25°C
		- Storage
		  40,000 ft

1-2 Computer Compatibility

Analog

Standard	Resolution	Vertical Refresh (Hz)
VGA	640x480	60
	640x480	72
	640x480	75
	640x480	85
	848x480 (For HD81 only)	60
	720x400	70
	720x400	85
SVGA	800x600	56
	800x600	60
	800x600	72
	800x600 (For HD81 LV only)	75
	800x600	85
XGA	1024x768	60
	1024x768	70
	1024x768	75
	1024x768	85
WXGA	1280x768	60
	1280x768	70
	1280x768	75
HD	1280x720	60
SXGA (For HD81 only)	1280x1024	60
MAC (For HD81 only)	1152x870	75.06
MAC G4 (For HD81 only)	640x480	60
i Mac DV (For HD81 only)	1024x768	75

Digital

Standard	Resolution	Vertical Refresh (Hz)	Horizontal Scan (KHz)
VGA	640x480	60	31.5
	640x480	72	37.9
	640x480	75	37.5
US TEXT	720x400	70	31.5
SVGA	800x600	60	37.9
	800x600	72	48.1
	800x600	75	46.9
XGA	1024x768	60	48.4
	1024x768	70	56.5
	1024x768	75	60
	1280x720 (ForHD81-LV only)	60	45
	1920x1080 (ForHD81-LV only)	24	27.0
	1920x1080 (ForHD81-LV only)	60	67.5
Wide (For HD81 only)	1280x720	50	
	1280x720	60	45
	1920x1080	24	27
	1920x1080	50	
	1920x1080	60	67.5

Part II HD81/HD81-LV Controller Box

1-3 Highlight

No	Item	Description
1	Cabinet	- Provides space for PCB boards, power supply, no need of fans cooling
2	Color	For HD81 - Top Cover: CS-CT108(Pearl white) - Bottom Base: Pantone Cool Gray 9C (Glossy) - Side/Back covers: CS-CT108(Pearl White) - Lens rim/Zoom ring/Focus ring: Chromate treatment - Keypad: CS-CT108(Pearl White) For HD81-LV - Top Cover: CS-CT112A(Pearl BLACK) - Bottom Base:CS-CT54A (Black) - Side/Back covers: CS-CT112A(Pearl BLACK) - Lens rim/Zoom ring/Focus ring: Chromate treatment - Keypad: CS-CT12A(Pearl BLACK)
3	Front Side	- Seven controlled buttons of Power,Menu/Exit,Enter/Source,Up,Down,Left,Right/Resync - One LED (Standby:RED, Power on:Blue) - One IR receiver window - One Mini DIN 4-pin connector for S-video input - One RCA Jack for Composite Video Input - Push opened front cover with Gear
4	Power Consumption	- Full power(at normal mode): typical 425W+/-10% at 110V AC - ECO power(at ECO mode): typical 360W+/-10% at 110V AC - Standby mode: <7 W at 110V AC
5	Power supply	- Universal AC 100--240V; 50 / 60 Hz with PFC input - Max. 465W - provide for "projector" system power

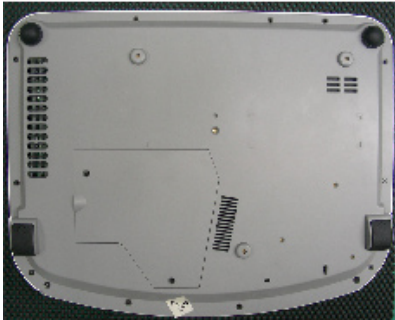| No	Item	Description
6	Terminals	- One D-sub 15-pin female connector for Component video/Analog RGB input - Two Mini DIN 4-pin connector for S-video input - Two RCA Jack for Composite Video Input - Two sets of RCA connectors (YPbPr) for Component video input - Two sets of BNC connectors (YPbPr/RGBHV) for Component video/Analog RGB input - Two 12v trigger output connector for projector screen control - One D-sub 9-pin RS-232 port (For control) connecting to computer for projector control/FW upgrade - Three HDMI input connector (HDMI in-1,HDMI in-2,HDMI in-3) for HDMI device source switching - One HDMI output connector (To AV receiver) for connecting to AVR device HDMI input port - One HDMI input connector(From AV receiver) for connecting form AVR device HDMI output port - One HDMI output connector (To projector) for linking to projector HDMI input port (HDMI From Box) - One D-sub 9-pin RS-232 port (To projector) for linking to projector RS-232 port (RS-232From Box) - One earphone jack (IR Module) for external IR receiver module - One 2-pin AC power inlet port
7	Analog input signal spec	- Analog RGB signal(PC) 　Analog RGB 0.7Vp-p, 75 ohm 　Analog RGB 1Vp-p, 75 ohm, Sync. signal 　Separate TTL H,V Sync. 　Composite TTL Sync. - Video signal 　Composite video 1Vp-p, 75 ohm 　S-video Luminance 0.714Vp-p, 75 ohm 　Chrominance 0.286Vp-p, 75 ohm
8	System Controller	- Dual DDP3021, DAD1000, PMD1000 for 1080p DMD
9	Video Compatibility	- Standards: 　NTSC - NTSC M/J, NTSC 4.43 　PAL - PAL B/D/I/G/H, PAL M, PAL N 　SECAM - SECAM B/D/G/K/L 　SDTV - 480i, 480p, 576i, 576p, 　HDTV - 720p(50Hz), 720p(60Hz), 1080i(50Hz), 1080i(60Hz), 1080p (60Hz)
10	Keystone correction	- ± 5° Vertical(according to Gunnum's scalar specification. Gennum does not support Horizontal keystone)

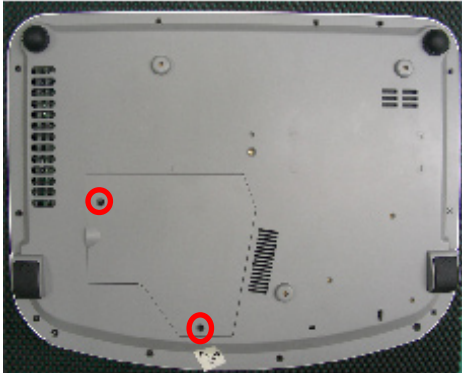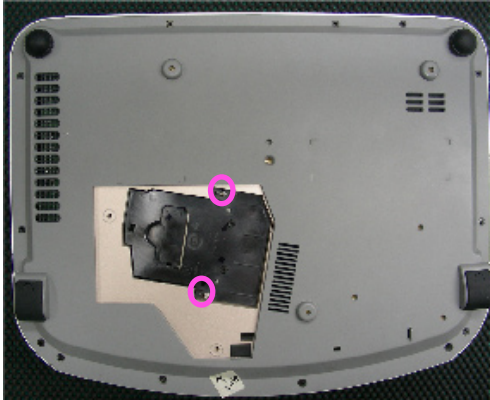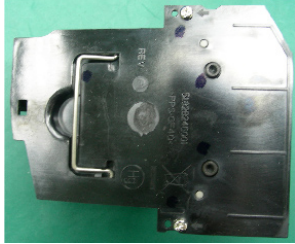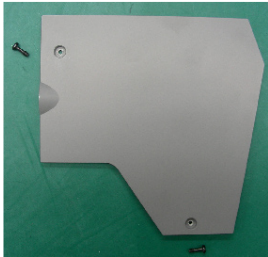| No	Item	Description
11	Auto Detect & Install	- Automatically recognizes the input signal and configures Itself accordingly. - Automatically saves adjustments for future use. Saved settings provide a method to quickly identify previously configured modes and restore those settings
12	LED Indicators	- Lower brightness of "Power LED" (Blue) after turn on the power button 5 min.
13	Control Key Pad	7 button keys: - Power button: power on/off - Menu/Exit button: menu or exit - Enter/Source button: enter or select next input source signal - Left button: 'left' when OSD menu activated or source - Right/Resync button: 'right' when OSD menu activated or re-sync. Input source signal - Down button: 'down' when OSD menu activated - Up button: 'up' when OSD menu activated
14	On-Screen Menu	- OSD Languages: English, German, French, Italian, Spanish, Portuguese, Polish, Dutch, Swedish, Norwegian (No/Dk), Russian,Finnish, Traditional Chinese, Simplified Chinese, Japanese, Korean: 16 in total.
15	OSD menu	- Lamp life, lamp output control. Core: okay - DDP3021 controls. - Projection positions. Core: okay - CCA control via DDP3021 - Brilliant color control.

Chapter 2

Disassembly Process

Part I   HD81/HD81-LV Projector
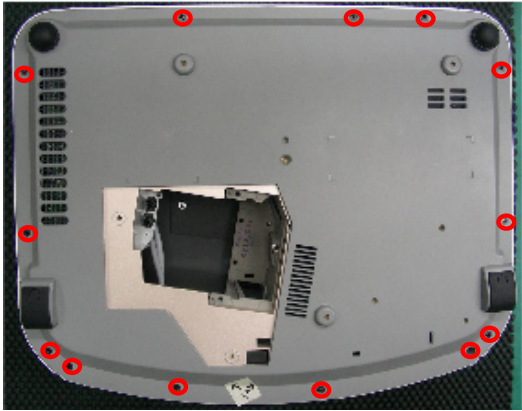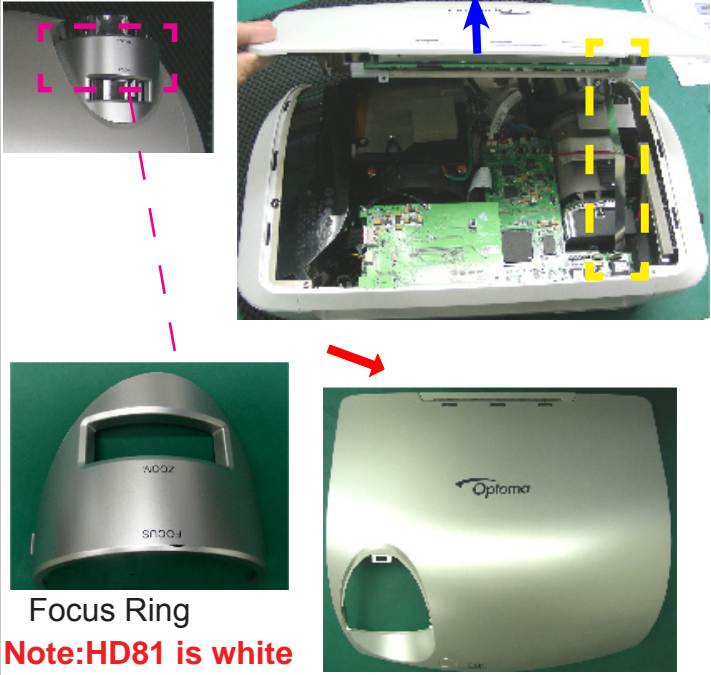
2-1 Equipment Needed&Product Overview

Item	Photo	Item	Photo
Philips: 107		Hex Sleeves 5mm	
Philips: 101			
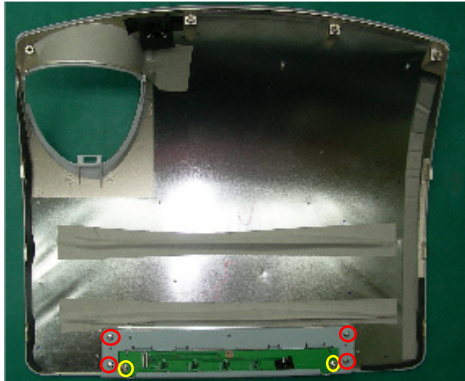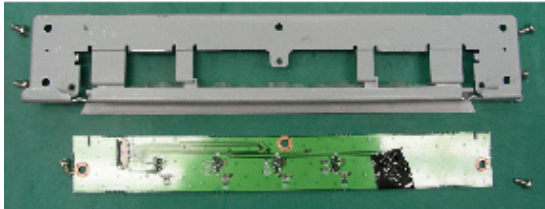
Item	Photo	Item	Photo
Front Side		Rear Side	
Top Side		Bottom Side	

2-2 Disassemble Lamp Cover and Lamp
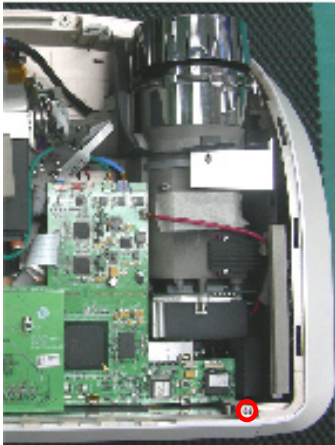
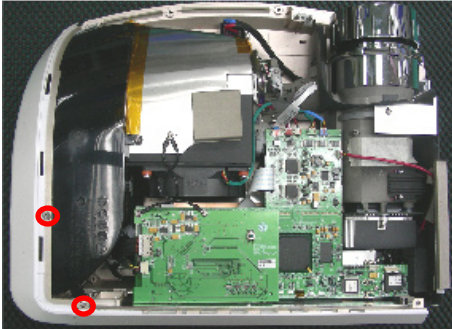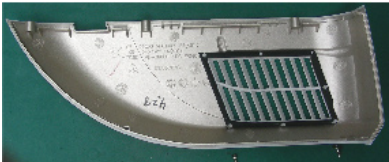| No	Procedure	Photo
1	(1). Unscrew 2 screws to disassemble the Lamp Cover. (as red circle) (2). Disassemble the Lamp Cover Module. (3). Unscrew 2 screws to disassemble the Lamp Module. (as pink circle) (4).Pull up the Lamp Module.	1 2 Lamp Cover Lamp
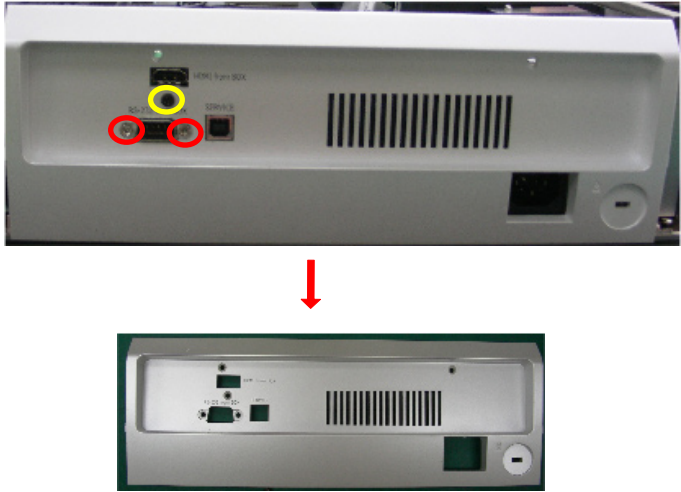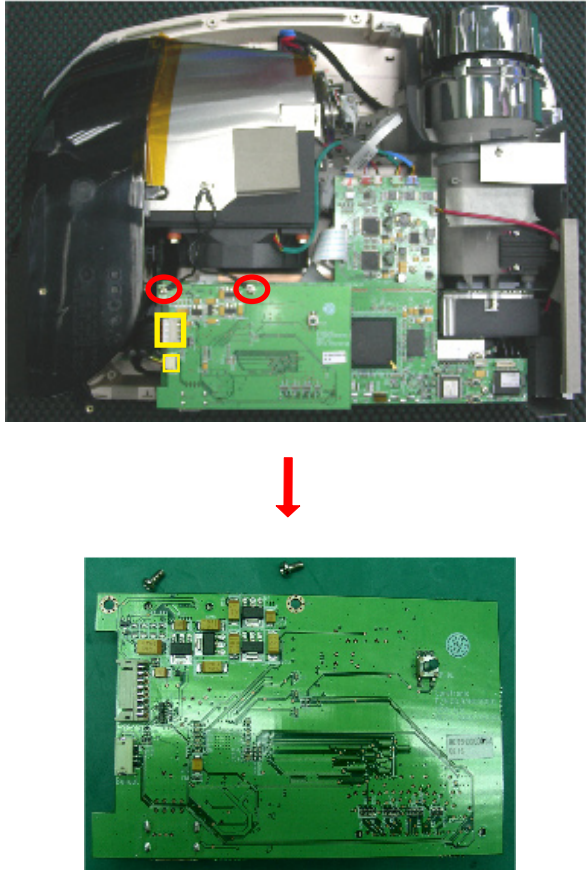
2-3 Disassemble Focus Ring,Top Cover&Keypad Board
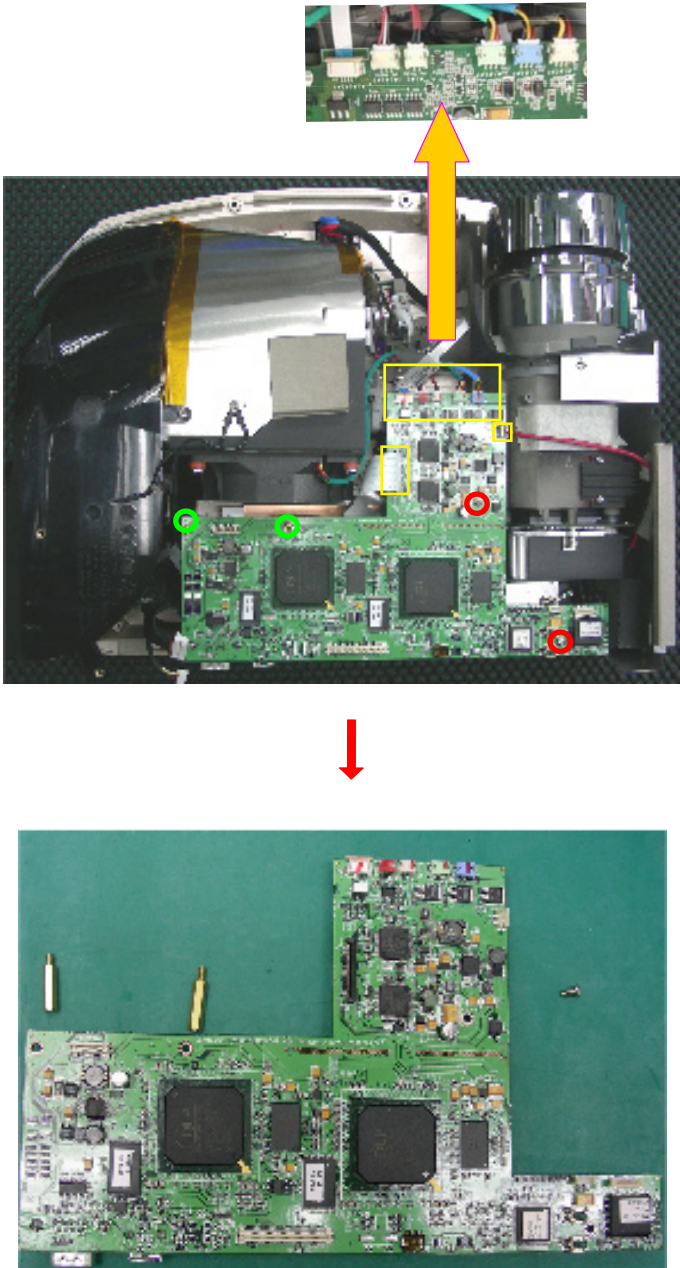
No	Procedure	Photo
1	(1). Unscrew 13 screws from the Bottom Cover. (as red circle) (2). Unscrew 2 screws from the Rear Cover. (as red circle) (3). Disassemble Focus Ring, unplug the wire (as yellow square) and push forward to disassemble the Top Cover.	1 2 3 Focus Ring **Note:HD81 is white** **HD81-LV is black** Top Cover **Note:HD81 is white** **HD81-LV is black**

No	Procedure	Photo
2	(1). Unplug 1 wire. (as yellow square) (2). Unscrew 4 screws to disassemble Keypad Module. (as red circle) (3). Unscrew 2 screws to disassemble Keypad Board and Keypad Bracket. (as blue circle)	1 2 3 Keypad Board and Keypad Bracket
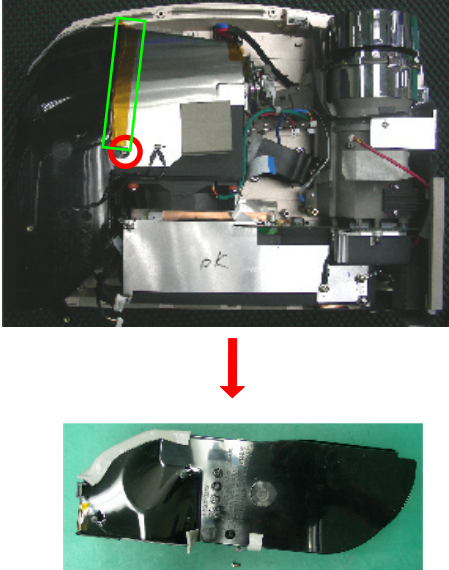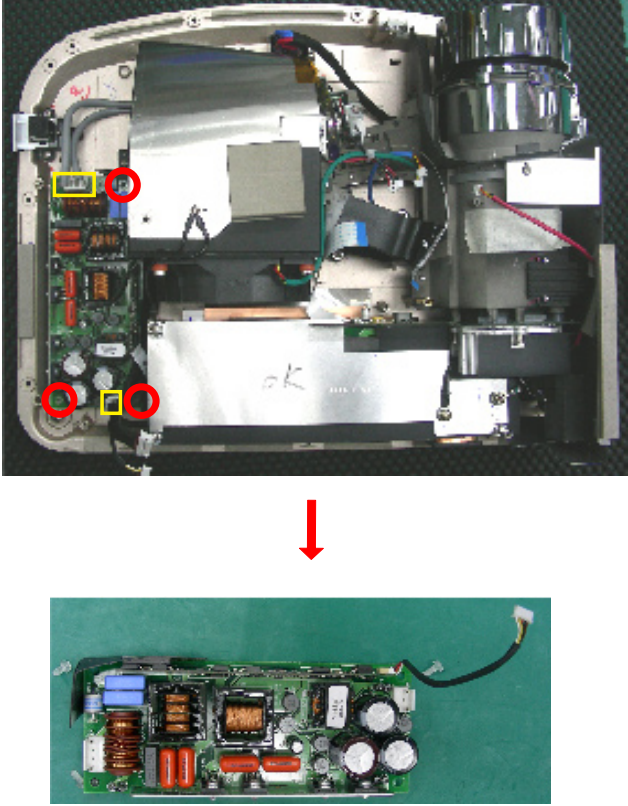
2-4 Disassemble Cover Module, Rear Cover Network Module and Format Board

No	Procedure	Photo
1	Left cover module: (1). Unscrew 1 screw. (as red circle) (2). Disassemble the Left cover.	1 2 Left Cover Module
2	Right cover module: (1). Unscrew 2 screws. (as red circle) (2). Disassemble the Right cover.	 Right Cover Module
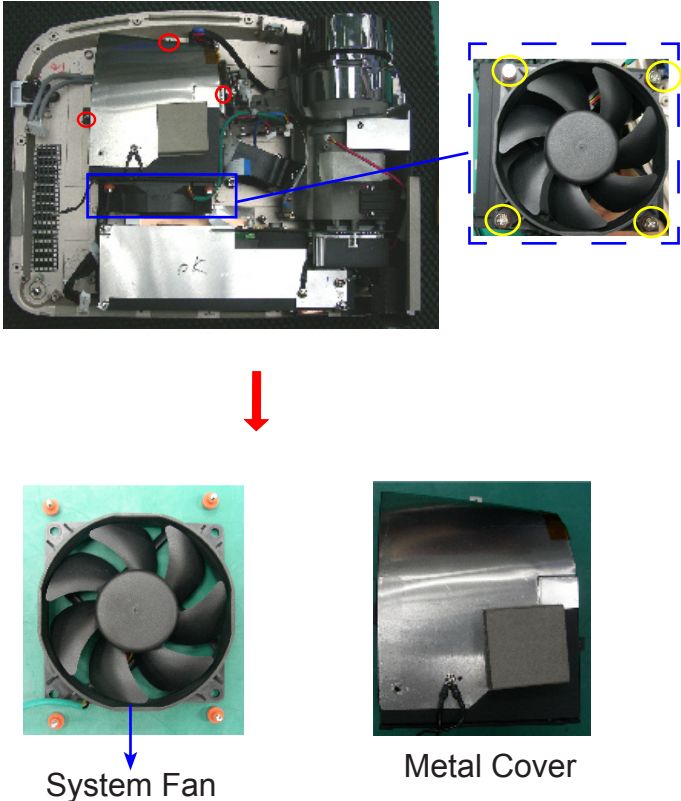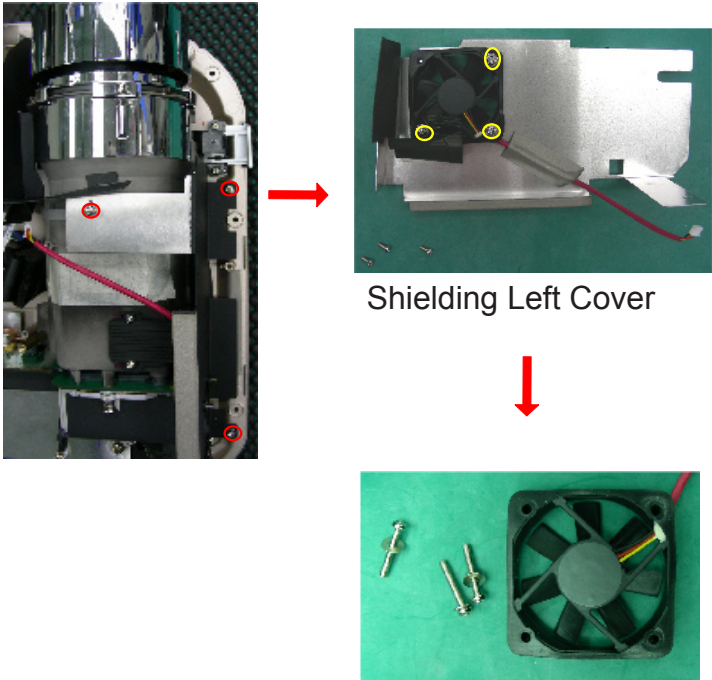
No	Procedure	Photo
3	Rear Cover: (1). Unscrew 1 screw and 2 Hexes to disas-semble Rear Cover.	 Rear Cover **Note:HD81 is white HD81-LV is black**
4	Network Module: (1). Unscrew 2 screws. (as red circle) (2). Unplug 2 wires. (as yellow square) (3). Disassemble Net-work Module.	 Network Module
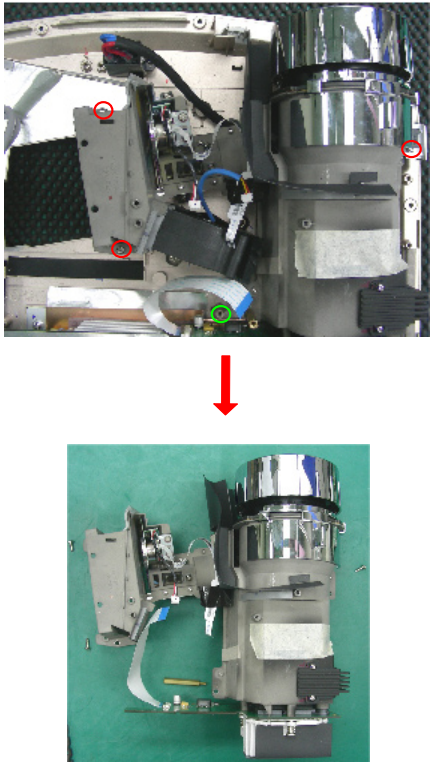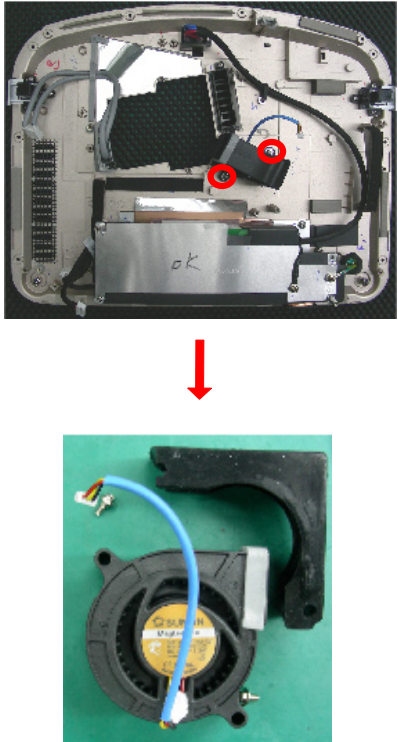
No	Procedure	Photo
5	Format Board: (1). Unscrew 2 screws. (as red circle) (2). Unscrew 2 copper pillars. (as green circle) (3). Unplug 7 wires. (as yellow square) (4). Disassemble Format Board Note: Please take note of the matching of wire connection	 Format Board

2-5 Disassemble Air-Duct and Lamp driver Module
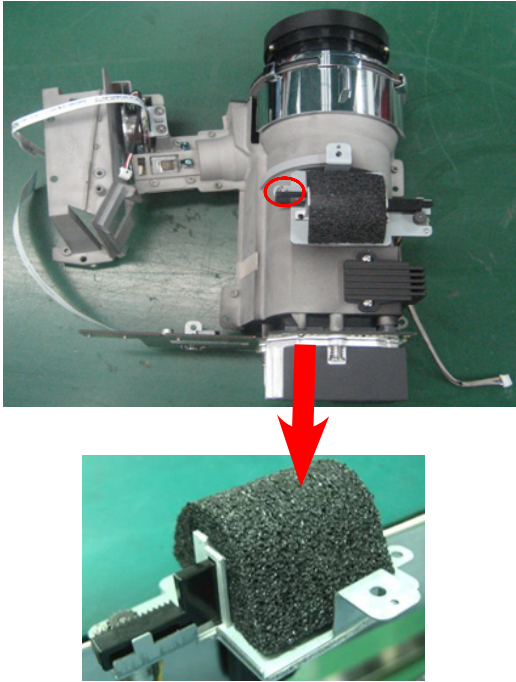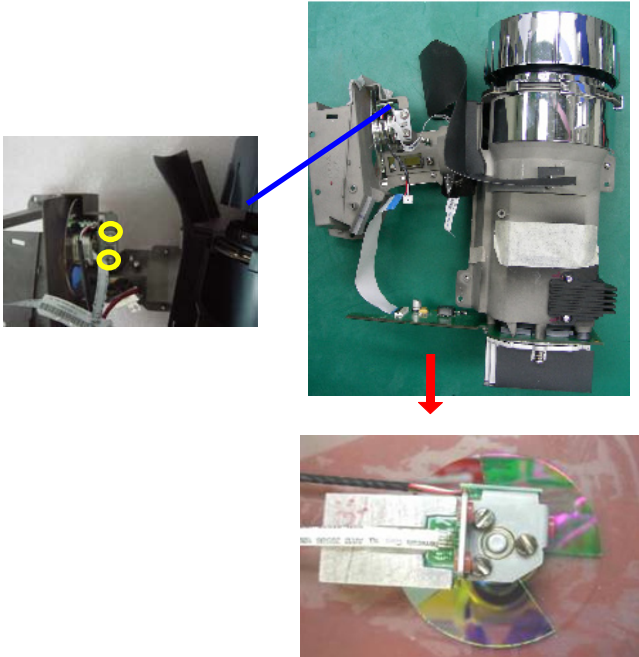
No	Procedure	Photo
1	(1). Tear the tape. (2). Unscrew 1 screw (as red circle) to disassemble the Air-Duct.	 Air-Duct
2	(1). Unscrew 3 screws. (as red circle) (2). Unplug 2 plugs. (as yellow square) (3). Disassemble the Lamp driver.	 Lamp driver
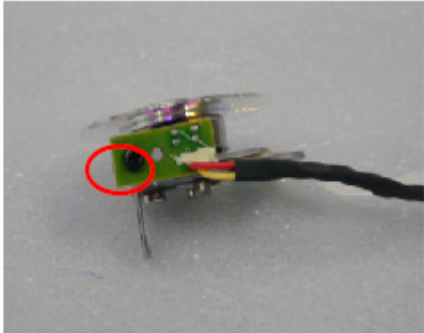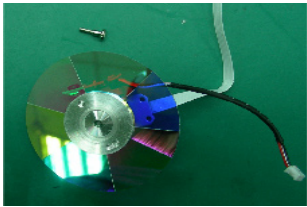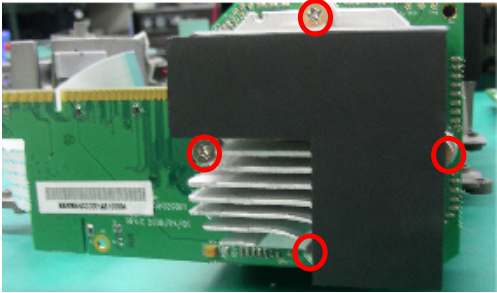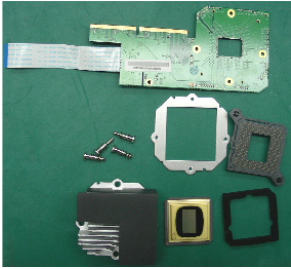
2-6 Disassemble Fan Module,Thermal switch,Engine Module

No	Procedure	Photo
1	(1). Unscrew 3 screws to disassemble Cooling Module. (as red circle) (2). Unscrew 4 screws to disassemble System Fan Module. (as yellow circle)	 System Fan Metal Cover
2	(1). Unscrew 3 screws (as red circle) to disassemble Shielding Left Cover Module (2). Unscrew 3 screws (as yellow circle) to disassemble Axial Fan.	 Shielding Left Cover Axial Fan
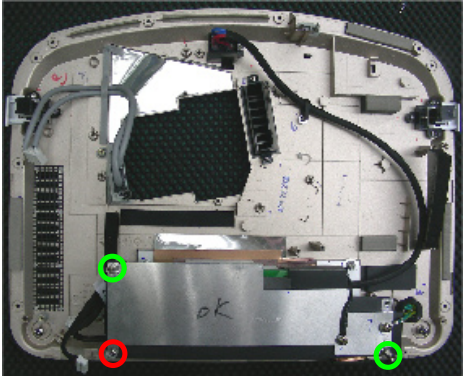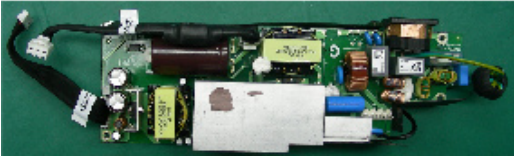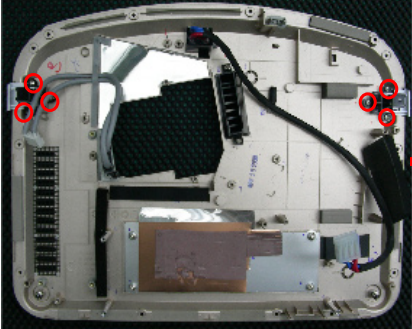
No	Procedure	Photo
3	Unscrew 3 screws (as red circle) and 1 copper pillars (as green circle) to disassemble Engine Module.	 Engine Module
4	1. Unscrew 2 screws. (as red circle) 2. Disassemble Fan Module.	 Fan Module

2-7 Disassemble IRIS Module, Color Wheel Module, DMD Chip and DMD Board

No	Procedure	Photo
1	(1). Unscrew 1 screw to disassemble IRIS Module. (as red circle)	IRIS Module
2	(1). Unscrew 2 screws to disassemble Color Wheel Module. (as yellow circle)	Color Wheel Module
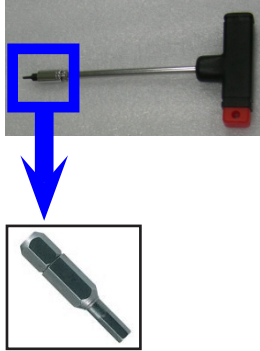
No	Procedure	Photo
2	(2). Unscrew 1 screw to disassemble Color Wheel and photo sensor. (as red circle) Note: Avoid to touch the glass parts in Color Wheel.	 photo sensor Color Wheel
3	(1). Unscrew 4 screws. (as red circle) (2). Disassemble DMD Chip and DMD Board.	 DMD Chip and DMD Board

2-8 Disassemble LVPS and Elevator Foot Module
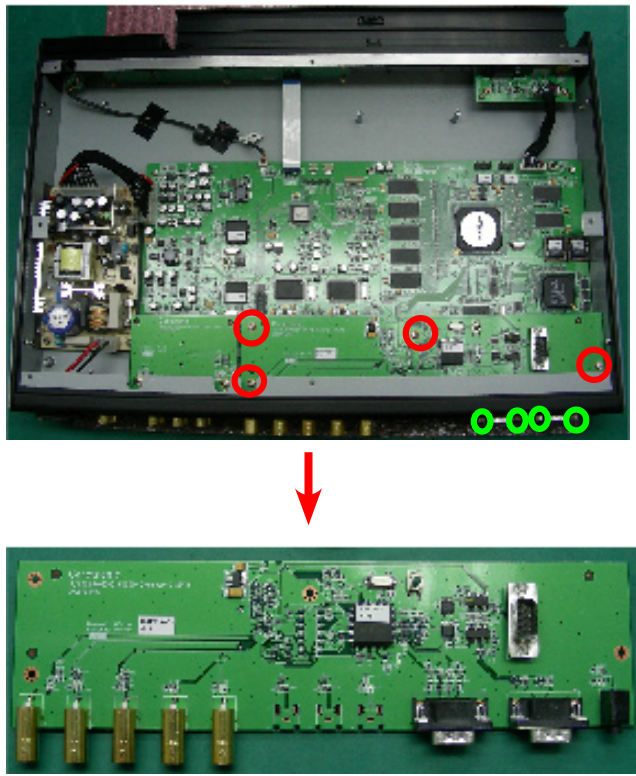
No	Procedure	Photo
1	(1). Unscrew 1 screw (as red circle) and 2 copper pillars. (as green circle) (2). Unplug 1 wire. (as yellow square) (3). Lift up the LVPS.	 LVPS
2	Unscrew 6 screws to disassemble Elevator Foot Module both left and right side.	 Elevator Foot Module
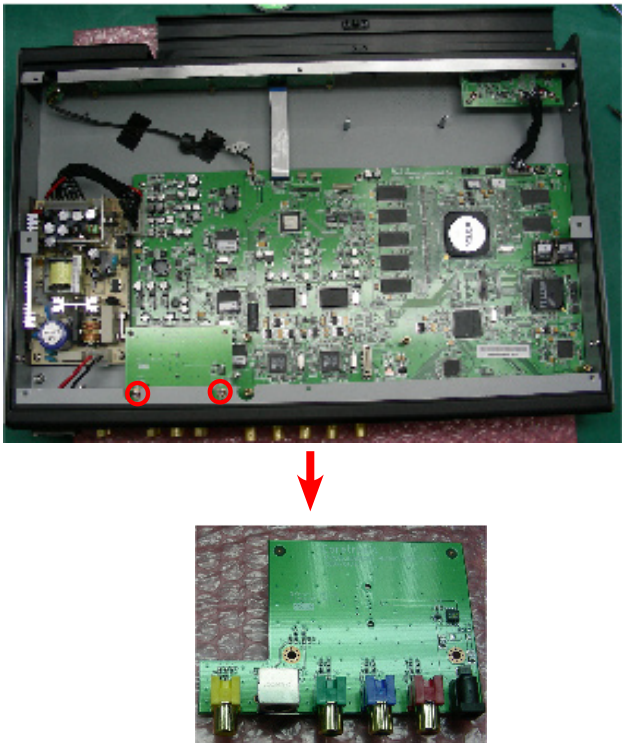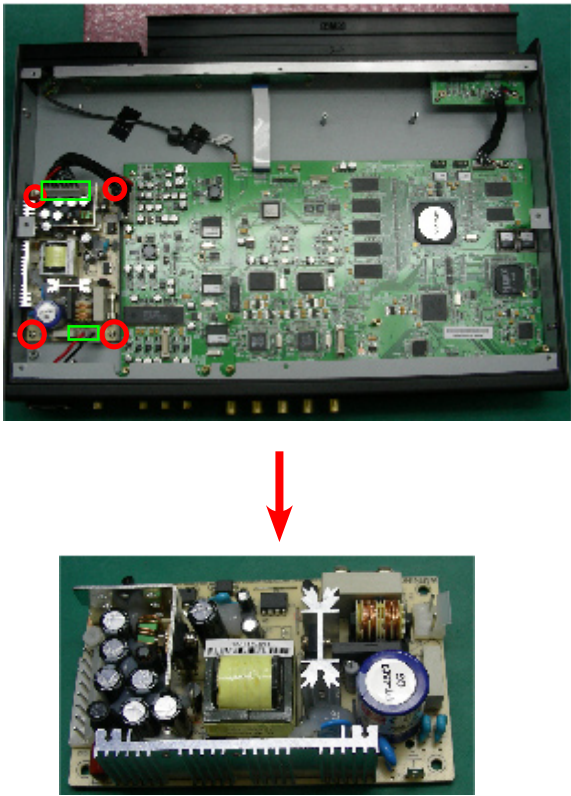
Part II   HD81/HD81-LV Controller Box
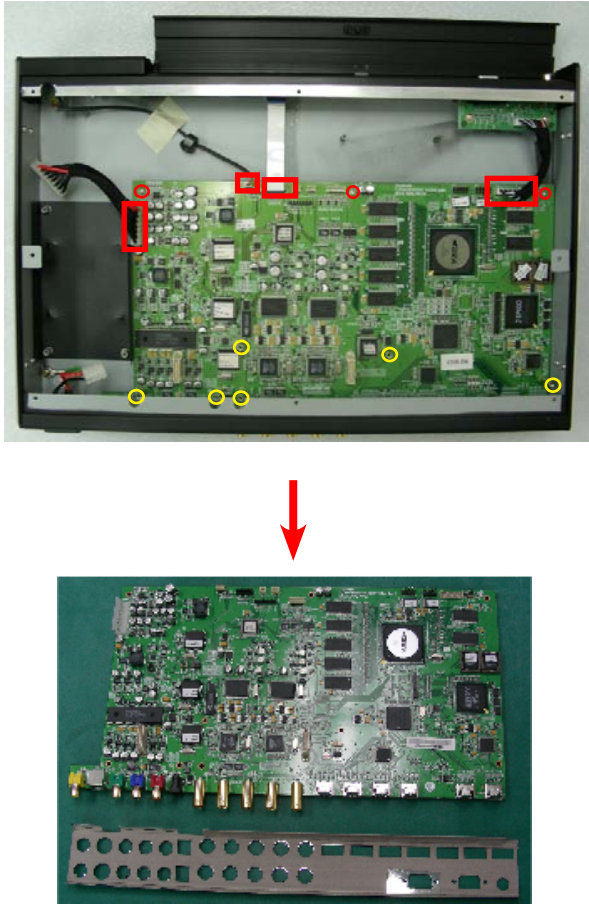
2-1 Equipment Needed

Item	Photo	Item	Photo
Screw Bit (+) :107		Hex Sleeves 5mm	
Hex Sleeves 6mm		Hex Socket Insert Bit	

2-2 Disassemble CONNT-2 Board, CONNT-1 Board, Power Board and Main Board
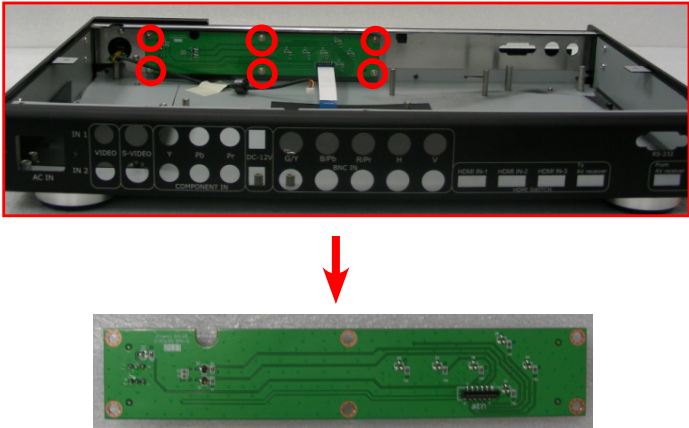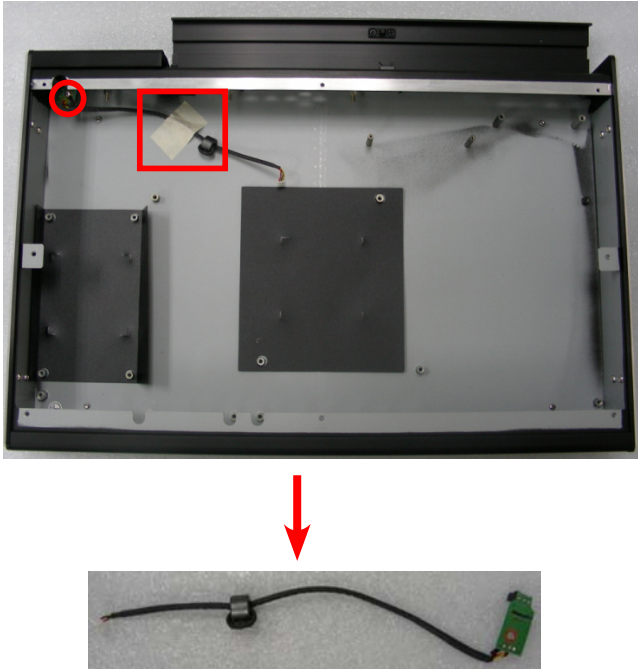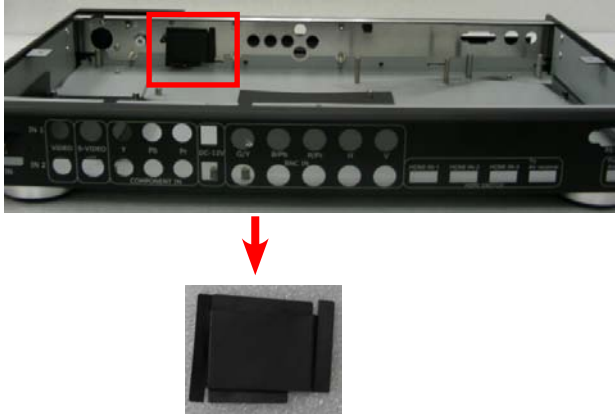
No	Procedure	Photo
1	(1). Press the part (in the red square) to open Front Cover. (2). Unscrew 8 Hex Socket Cap Screws to disassemble Top Cover.	 Press to open front cover Top Cover
2	Unscrew 4 screws (in the red circle) and 4 hex screws (in the green circle) to disassemble CONNT-2 Board.	 CONNT-2 Board

No	Procedure	Photo
3	Unscrew 2 screws to disassemble CONNT-1 Board.	 CONNT-1 Board
4	Unscrew 4 screws (in the red circle) and unplug 2 connectors (in the green square) to disassemble Power Board.	 Power Board
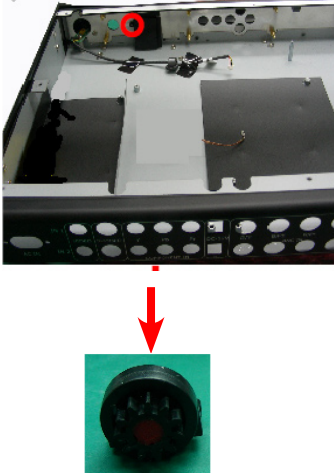
No	Procedure	Photo
5	Unscrew 3 screws (red circle), 6 copper pillars (yellow circle and unplug 4 connectors (red square) to disassemble Main Board and Back End Metal.	 Main Board
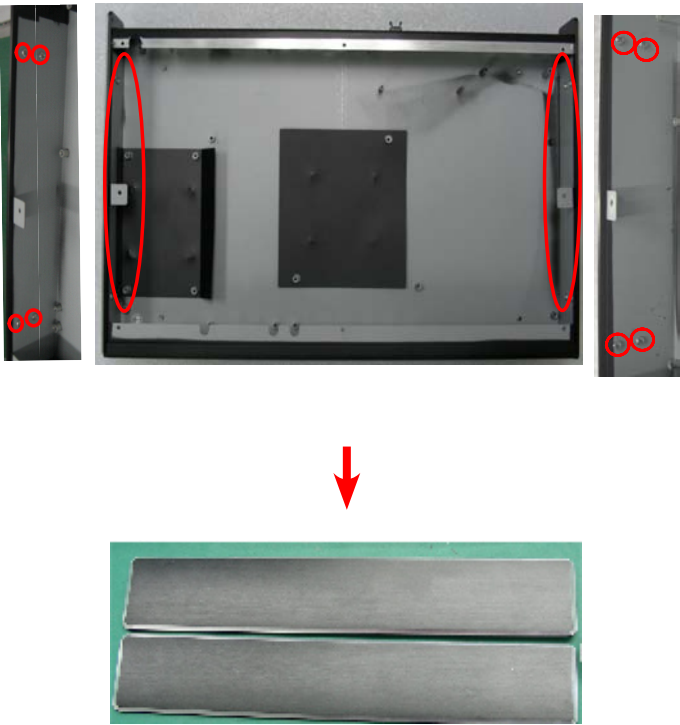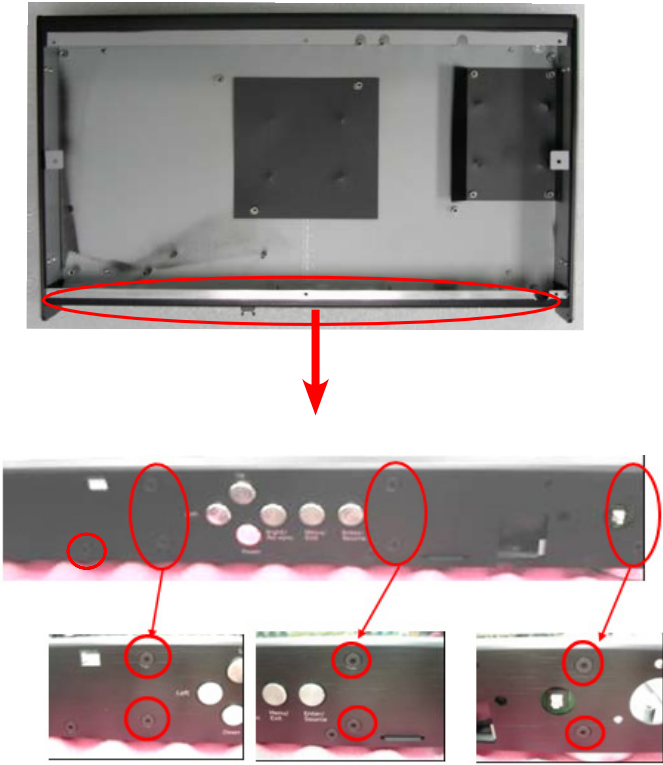
2-3 Disassemble AC Plug, CONNT-3 Board, Keypad Board and IR Board
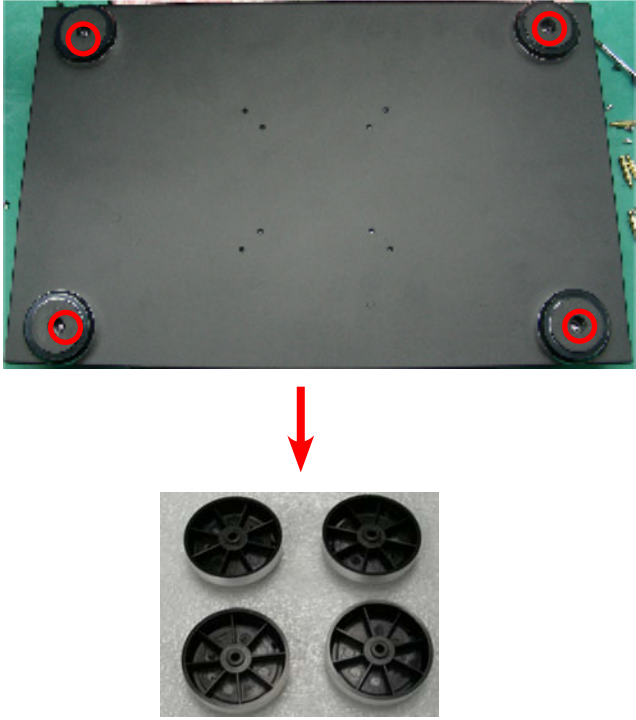
No	Procedure	Photo
1	Unscrew 3 screws to disassemble AC Plug.	AC Plug
2	Unscrew 2 screws (in the red circle) and 2 hex screws (in the green circle) to disassemble CONNT-3 Board and Back End Metal.	CONNT-3 Board Back End Metal.

No	Procedure	Photo
3	Unscrew 6 screw nuts to disassemble Keypad Board.	Keypad Board
4	Unscrew 1 screw and tear the masking tape to disassemble IR Board.	IR Board
5	Disassemble Mylar	Mylar

2-4 Disassemble Geer Wheel, Front Cover, Left and right Cover, front panel, Door Lock and Stamping Foot

No	Procedure	Photo
1	Unscrew 1 screws to disassemble Gear Wheel.	Gear Wheel
2	Unscrew 3 screws to disassemble Right and Left Front Panel.	Screw Hex I/O Right Front Panel Left Front Panel
3	Unscrew 2 screws (in the red circle) to disassemble the Door Lock.	Door Lock

No	Procedure	Photo
4	Unscrew 8 screws (in the left and right side respectively) to disassemble Left and Right Lateral Panel.	 Left and Right Lateral Panel
5	Unscrew 7 screws to disassemble Front Panel.	 Front Panel

No	Procedure	Photo
6	Unscrew 4 screws to disassemble Stamping Foot.	 Stamping Foot

Troubleshooting

3-1 LED Lighting Message

HD81/HD81-LV's Projector side

Normal Operation Message	Power LED			Lamp-LED		Temp-LED	
	Red	Dark Blue	Bright Blue	Or-ange	Blue	Red	Blue
Standby State (Input power cord)	✱	O	O	O	O	O	O
Power on (warming)	O	O	✱	O	O	O	O
Dark LED for cinema (After Power on 5 mins.)	O	✱	O	O	O	O	O
Power off (Cooling)	O	O	Blinking	O	O	O	O
Error (Lamp fail)	O	O	✱	Blinking	O	O	O
Error (Fan fail)	O	O	✱	O	O	Blinking	O
Error (Over Temp.)	O	O	✱	O	O	✱	O
Error (HDMI Connection Fail (*2))	O	O	✱	O	Blinking	O	O
Error (RS232 Connection Fail (*2))	O	O	✱	O	O	O	Blinking
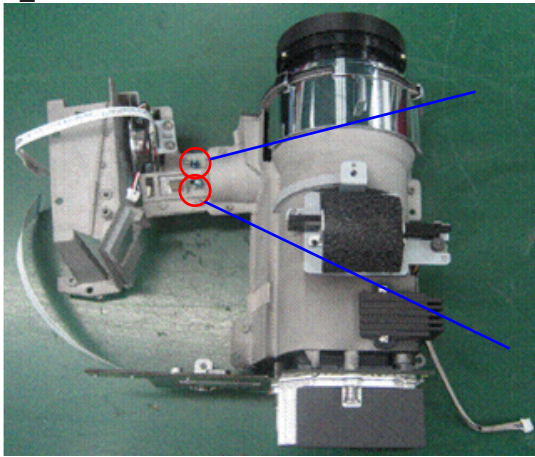
HD81/HD81-LV's Box

Normal Operation Message	Power LED	
	Red	Bright Blue
Standby State (Input power cord)	✳	O
Power on	O	✳

✳ => Light On   O => Light Off

No	Symptom	Procedure
4	**No Light On**	- Ensure all connectors are securely connected and aren't broken - Check Lamp Module - Check lamp driver - Check LVPS - Check Main Board - Check IO Board - Check format Board - Check connector-1 Board
5	**Mechanical Noise**	- Check Color Wheel - Check Fan Module
6	**Line Bar / Line Defect**	- Check if the Main Board and the DMD Board are assembled properly - Check DMD Board - Check DMD Chip - Check Format Board
7	**Image Flicker**	- Do "Reset" of the OSD Menu - Ensure the Signal Cable and Source work - Clean Photo Sensor Board - Check Format Board - Check Color Wheel - Check DMD Board - Check Main Board
8	**Color Abnormal**	- Do "Reset" of the OSD Menu - Adjust Color Wheel Index - Check Main Board - Check DMD Board - Check Color Wheel
9	**Poor Uniformity / Shadow**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Ensure the Brightness is within spec. (Replace the Lamp if the Brightness is less than spec.) - Check Engine Module
10	**Dead Pixel / Dust (Out of spec.)**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Clean DMD Chip and Engine Module - Check DMD Chip - Check Engine Module

No	Symptom	Procedure

11	**Remote Control or Control Panel Failed**	- Remote Control
		  a. Check Battery
		  b. Check Remote Control
		  c. IR Receiver
		  d. Check Main Board
		- Control Panel
		  a. Check FPC
		  b. Check Keypad
		  c. Check Main Board

12	**Function Abnormal**	- Do "Reset" of the OSD Menu - Check Main Board - Check format Board - Check Auto IRIS(If IRIS function failed)
13	**Sound Abnormal**	- Ensure the AV-Recevier connector is correctly connected - Ensure the Signal Cable and Source work - Check Speaker - Check Main Board - Check Connect Board
14	**Rod Adjustment**	- If there are shadow at "TOP" & "Bottom"side of the screen, adjust "Screw 1" to adjust ROD position - If there are shadow / yellow light / blue light at "Left" & "Right" side of the screen, adjust "Screw 2" to adjust ROD position - "Screw 1" should be adjusted first, and then "Screw 2" Screw 2 Screw 1

3-2 Main Procedure

No	Symptom	Procedure

1	**No Power**	- Ensure the Power Cord and AC Power Outlet are securely connected
		- Check Lamp Cover and Interrupt Switch
		- Ensure all connectors are securely connected and aren't broken
		  a. Projector and controller Box's LED are both no light
		    - Check Box's Power Board
		    - Check Box's Main Board
		  b. Projector LED no light, controller Box LED normal
		    - Check controller's connector-1 Board
		    - Check projector IO Board

2	**Auto Shut Down**	Do reset of the controller Box
		- Check LED Status
		  a. Lamp LED Light
		    - Check Lamp
		    - Check Lamp Driver
		    - Check Format Board
		  b. Temp LED Light
		    - Check Thermal Sensor
		    - Check Thermal Switch
		    - Check Fan
		  c. Color Wheel
		    - Check Color Wheel
		    - Check Photo Sensor

3	**No Image**	- Ensure the Signal Cable and Source work as well
		  (If you connect multiple sources at the same time, use the "Source" button on the control panel to swtich)
		- Ensure all connectors are securely connected and aren't broken
		  Do system reset of menu
		- Check Main Board

3-3 System Block Diagram

HD81/HD81-LV Projector

HD81/HD81-LV Video Box
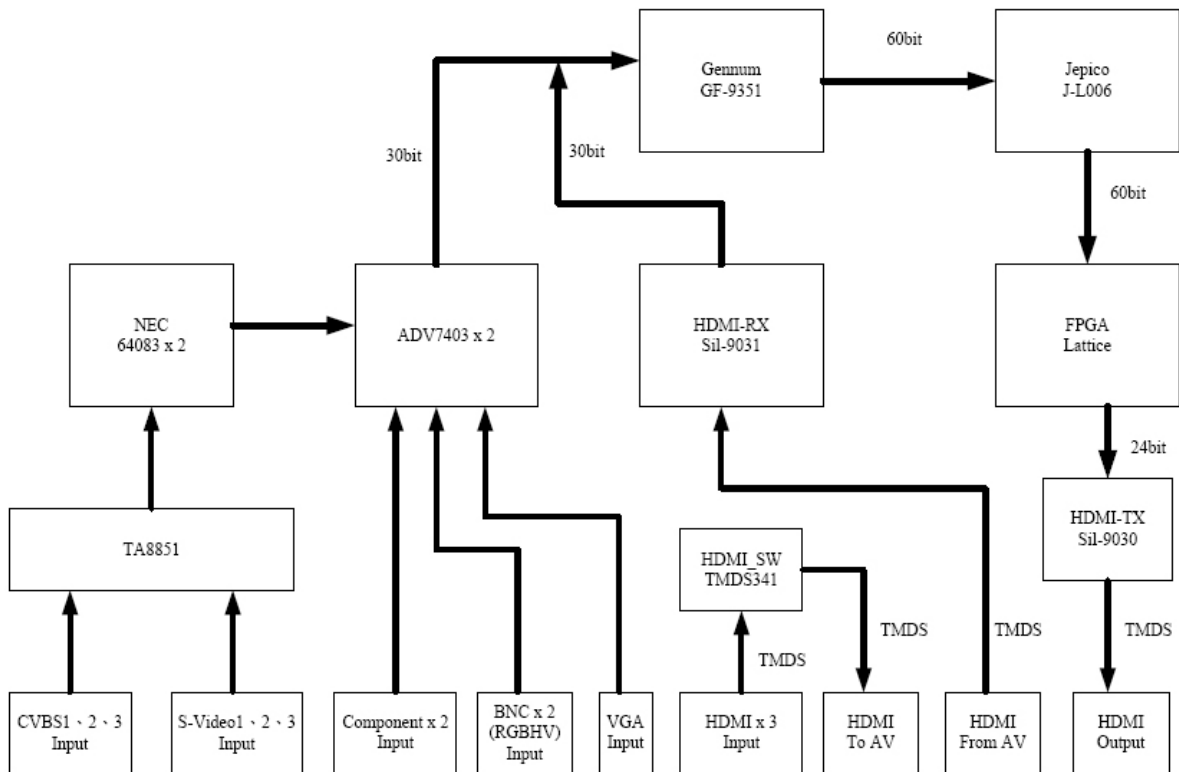
Function Test & Alignment
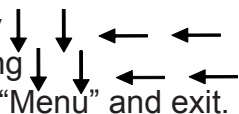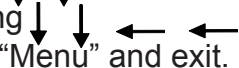
Part I   HD81/HD81-LV Projector

4-1 Test Equipment Needed

- IBM PC with XGA resolution (Color Video Signal & Pattern Generator)
- DVD player with Multi-system (NTSC/PAL/SECAM)
- HDTV Tuner or Source (480i, 720P, 1080i), equipped with "Component", "S-Video", "Composite" Interface.
- Minolta CL-100
- Quantum Data 802B or CHROMA2327
- After changing parts, check the information below. It needs the Controller Box.

Charge Parts/ Update	Version Update	Color Wheel Index	ADC Calib- ration	Video Calibration	Reset Lamp Use Time	Factory Reset	**EDID**	**Lamp life**
M/B	v	v				v	v	
FW	v	v				v		
Color Wheel		v						
Lamp Mod- ule					v			

4-2 Service Mode

No	Step
1	Turn on the Projector and controller Box and input the signal.
2	Do the following action sequentially to enter service mode menu. (1) Press and hold these button sequentially ↓ ↓ ← ← (2) Service Mode will be shown after pressing ↓ ↓ ← ← for 3 seconds. (3) After confirming the configuration, press "Menu" and exit.

4-3 Reset(OSD)

No	Step
1	After final QC step, we have to erase all saved change again and restore the OSD default setting.The following actions will allow you to erase all end-users' settings and restore the original setting: (1) Please enter OSD menu. (2) To execute "Reset" function .

4-4 Test Condition

- Circumstance Brightness : Dark room less than 10 lux.
- Inspection Distance : 1.7m~2.4m for functional inspection
- Screen Size : 60 inches diagonal (wide)
- After repairing each HD81&HD81-LV, the unit should be run-in (Refer to the table below).

Symptom	Run-in Time
Normal Repair	2 Hours
NFF	4 Hours
Auto Shutdown	6 Hours

- Enter Burn-In Mode
* Cycle setting is based on the defect symptoms. ie: If it is NFF, the run-in time is 4 hours. You have to set the lamp on for 50min. and lamp off for 10 min for 4 cycles.*
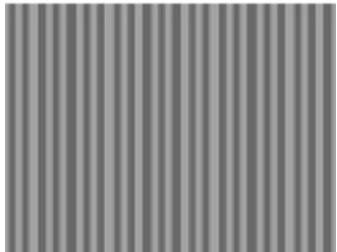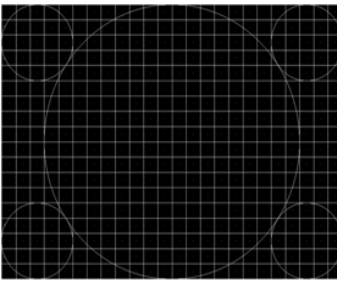
Press Down > Down > Left > Left	
Choose Burn-In Test > enter	
Lamp On (Min)	Press right key to adjust the time (50)
Lamp Off (Min)	Press right key to adjust the time (10)
Set burn in cycle	Press right key to adjust the cycle
After setting up the time, choose Burn-In mode and hit enter	
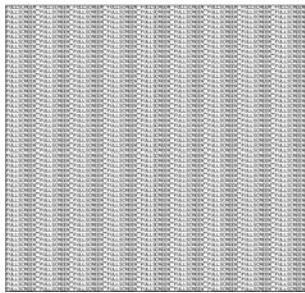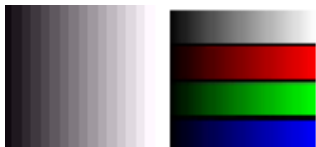
Screen Defects (While replacing DMD Chip, DMD BD and MB)
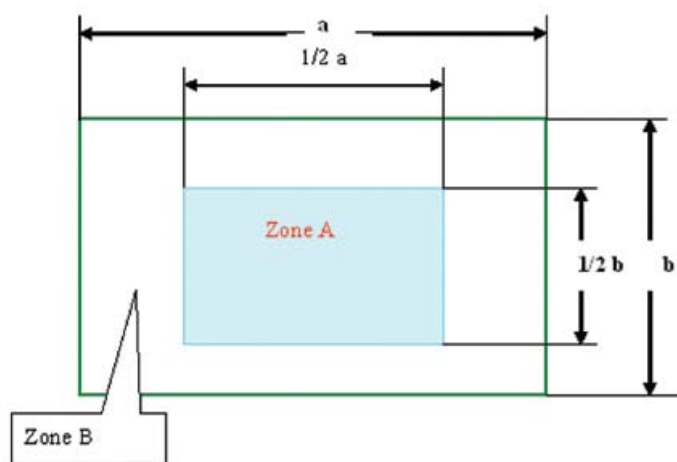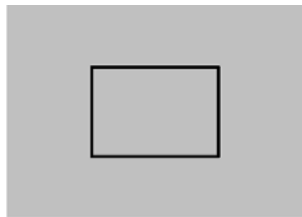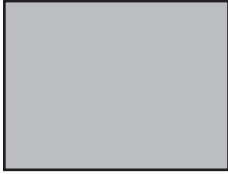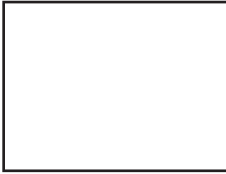
< Figure: Zone A & B Definition >

4-5 Inspection Procedure

No	Step	Specification	Procedure	Photo
1	Frequency and Tracking	Eliminate visual wavy noise by Rsync, Frequency or Tracking selection.	- Test Signal : 1920x1080@60Hz - Test Pattern : Line Moire Pattern - check and see if image sharpness and focus are well-performed. - If not, re-adjust by the followingsteps: (1) Select "Frequency" function to adjust the total pixel number of pixel clock in one line period. (2) Then, select "Tracking" function and use right or left arrow key to adjust the value to minimize video flicker.	
2	Boundary	Horz. And Vert. position of video should be adjustable to be the screen frame.	- Test Signal : 1920x1080@60Hz - Test Pattern : Flare-w Pattern - Adjust Resync or Frequency / Tracking / H. Position / V. Position to the inner of the screen.	

No	Step	Specification	Procedure	Photo
3	Focus	The text in the corner should be clear after adjust the focus ring.	- Test Signal : 1920x1080@60Hz - Test Pattern : Text Pattern - Adjust the center clearly; meanwhile, one slightly vague corner in the image is allowed.	
4	Color Performance	No image (discolor)	- Test Signal : 1920x1080@60Hz - Test Pattern : 64 RGBW Scale Pattern & Gray 16 Pattern - Please check and ensure if each color is normal and distinguishable. - If not, please adjust color index of the Engineering Mode.	
5	Screen Uniformity	Should be compliant with 60%.(Minimum)	- Test Signal : 1920x1080@60Hz - Test Pattern : Full White Pattern	

No	Step	Specification	Procedure	Photo
5	Screen Uniformity	Should be compliant with 60%.(Minimum)	- Please check and ensure the unit is under the spec. - Please check and see if it's in normal condition. - If not, please return the unit to repair area.	
6	Light Leak	The unit can't accept the leak-age is brighter then Gary 10 pattern	- Test Signal : 1920x1080@60Hz - Test Pattern : Gray 10 Patterns - Please check and see if the light leaks *Note - The unit cannot accept the leakage is brighter than Gray 10 Patterns Note: Light leak on reflective edge, eyecatcher, bond wires and exposed metal.	

No	Step	Specification	Procedure	Photo
7	Dead Pixel (Bright pixel)	Cannot accept any bright pixel	- Test Pattern : Full Black	
	Dead Pixel (Dark pixel)	The numbers of dead pixel should be smaller or amount to 6 pixels.	- Test Pattern : Full White	
8	Blemish (Bright)	The bright blemish cannot be accepted if the problem appear with Gary 30 patterns	- Test Pattern : Full Black / Gray 30	
9	Blemish (Dark)	The dark blemish cannot be accepted if the problem appear with Blue 60 patterns	- Test Pattern : Full white / Blue 60	

Part II   HD81/HD81-LV Controller Box

4-1 Test Equipment Needed

- Display Device (ex: Projectors)
- Signal Source (HDMI, Video, S-Video)
- Speaker
- PC
Note: Do the test procedure it needs the projector.

4-2 Inspection Item

No	Item
1	**- Image** HDMI 1&2&3, S-Video 1&2&3, CVBS 1&2&3, YPbPr 1&2, VGA, BNC 1&2
2	**- Sound** Speaker
3	**- Remote Control**

4-3 Inspection Procedure

No	Step
1	- Connect all source RS232,HDMI
2	- Switch input source by Remote Control and Control Panel. - Check if Image is normal. Get into service mode (Box) (Hot key to get into service mode: press these button sequentially ↓ , ↓ , ← , ←) Get into service mode (Projector) (Hot key to get into service mode: press these button sequentially ↓ , ↓ , ← , ←) Select projector -- into projector mode.
3	Region code setting: press these button sequentially ↓ , ↓ , ← , ←) Select projector -- into projector mode. Then, select "region select"

Firmware Upgrade Procedure

5-1 Main Board- Equipment Needed

Software

- Upgrade AP HD81(1.3).rar

- *.H00 (hix file)

- *.H01 (hix file)

- Device (*.bin file)

Hardware
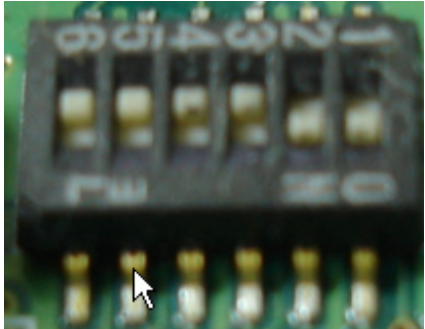
- HD81/HD81-LV and power cord

- PC

- RS 232 9 pin cable (pin to pin)
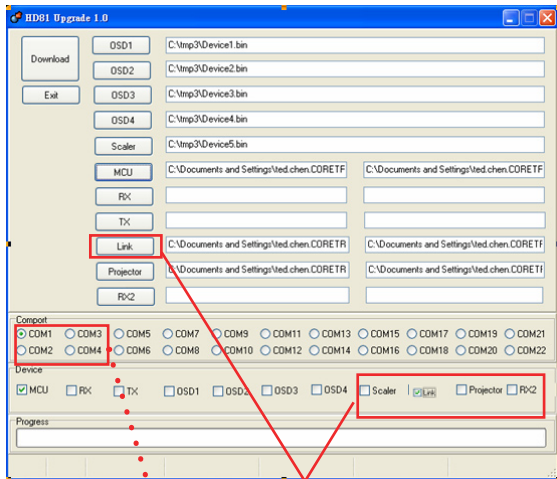
Item	Photo	Item	Photo
HD81 Projector		RS-232 Cable (M to M)	PN: 42.86603G001
PC		Power Cord	For box For projector
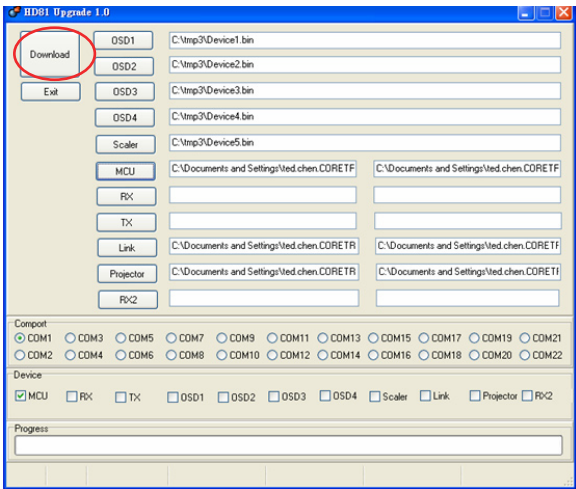
Part I HD81/HD81-LV Controller Box

5-2 Link MCU Upgrade (Location: U6)

Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Controller Box to PC.	
2	Main Board switch setting (control box)	Set switch to1& 2 On. Location: SW1	
3	Unplug in the power cord into the control box		
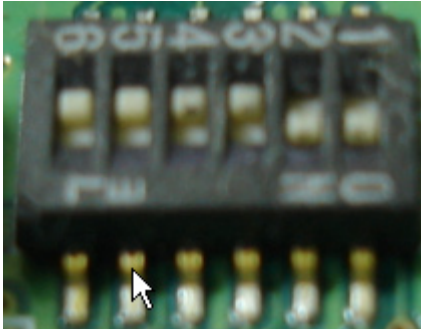
No	Step	Procedure	Photo
1	Execute Upgrade-HD81.exe Program	Double Click "UpgradeHD81" Program.	upgradeHD81
2	Setting	1. Select com Port to your real connection port number. 2. Select Device to "link". 3. Select link to the upgrade file: TP2808.H00. Note: *.H00 and *.H01 must be in the same folder.	**(1)** **(2)** **(3)**

No	Step	Procedure	Photo
3	Execute upgrade process	Press "Download" button to start up-grade.	
3.1	link RS232 cable	Link PC and control box by pluging the RS232 cable to PC and "for control" port on the control box	
4	Unplug power cord	Make sure power cord unplug.	
5	Press Hot key for up-grade	Press and hold the left key on front panel.	
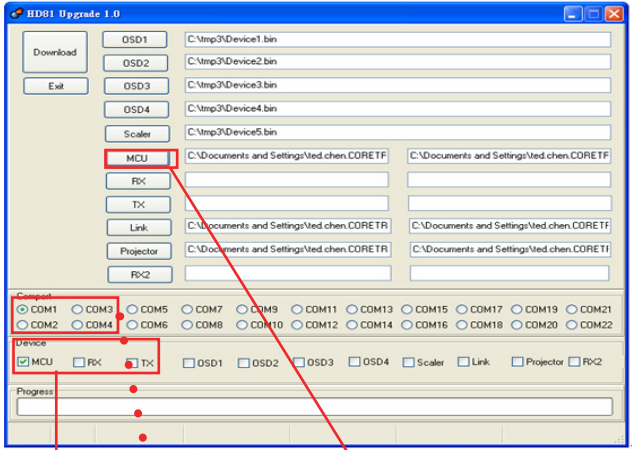
No	Step	Procedure	Photo
6	Plug power cord	Plug the power cord.	
7	Process	Wait for 5 seconds, then release left key. Upgrade will auto run.	
8	Upgrade finish	When MCU update complete, "Update Complete" will appear. Note: If you want to upgrade the next unit, you can start to upgrade MCU from No.3	

5-3 BOX MCU Upgrade (Location: U126)

Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Controller Box to PC.	
2	Main Board switch setting (control box)	Set switch to 1& 2 On.	
3	Unplug in the power cord into the control box		
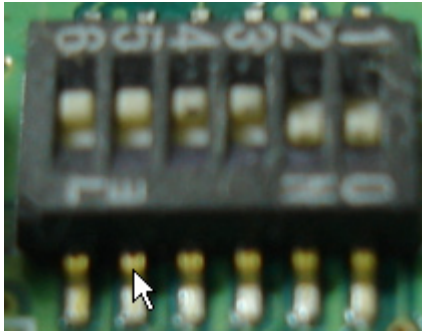
Upgrade Procedure

No	Step	Procedure	Photo
1	Execute Upgrade-HD81.exe Program	Double Click "UpgradeHD81" Program.	upgradeHD81
2	Setting	1. Select com Port to your real connection port number. 2. Select Device to "MCU" . 3. Select MCU to the upgrade file: HD5000.H00. Note: *.H00 and *.H01 must be in the same folder.	

No	Step	Procedure	Photo
3	Execute upgrade process	Press "Download" button to start upgrade.	
4	Unplug power cord	Make sure power cord unplug.	
5	Press Hot key for upgrade	Press and hold the left key on front panel.	
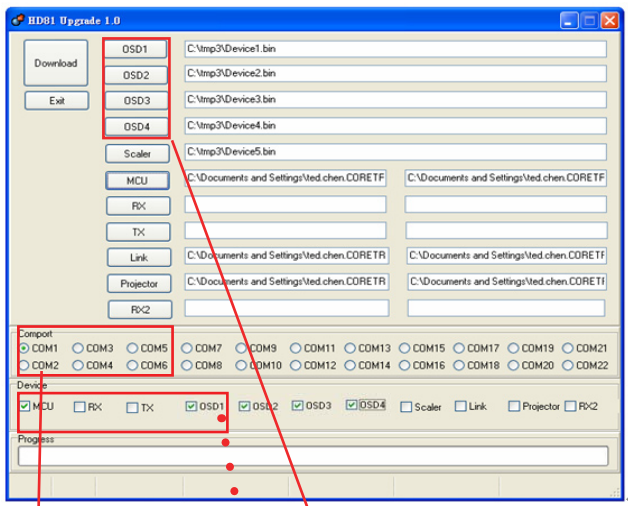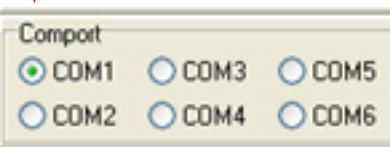
No	Step	Procedure	Photo
6	Plug power cord	Plug the power cord.	
7	Process	Wait for 5 seconds, then release left key. Upgrade will auto run.	
8	Upgrade finish	When MCU update complete, "Update Complete" will appear. Note: If you want to upgrade the next unit, you can start to upgrade MCU from No.3	

5-4 OSD Upgrade (Location: U35, U36, U37, U38)

Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Video Main Board to PC.	
2	Main Board switch setting	Set switch to1& 2 On.	
3	Plug in the the power cord into the control box		
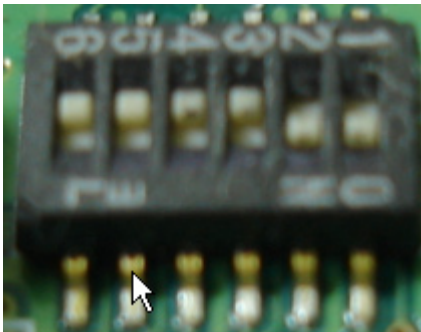
Upgrade Procedure

No	Step	Procedure	Photo
1	Execute Upgrade-HD81.exe Program	Double Click "UpgradeHD81" Program	
2	Setting	1. Select com Port to your real connection port number. 2. Select Device to "OSD1". And then "OSD2","OSD3" and "OSD4" will auto load in. 3. Select OSD to the upgrade file: U35 Device1.bin. And then U36 Device2.bin U37 Device3.bin and U38 Device4. bin will auto load in	

No	Step	Procedure	Photo
3	Setting	Unplug power cord and then plug in power cord. Make sure the led in front panel is red.	
4	Execute upgrade process	Press "Download" button to start up-grade.	
5	Process	Wait for 5 seconds, the upgrade will auto run.	
6	Upgrade finish	When OSD update complete (about 20 minutes), "Update Complete" will ap-pear. Note: If you want to up-grade the next unit, you can start to upgrade OSD from No.3	
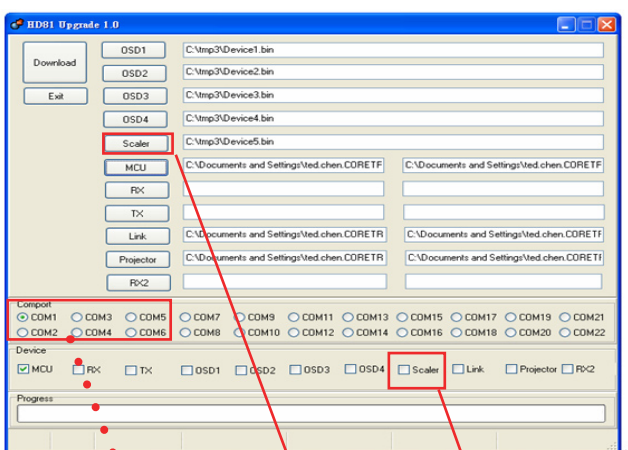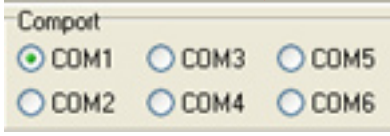
5-5 Scaler Upgrade (Location: U33, U34)
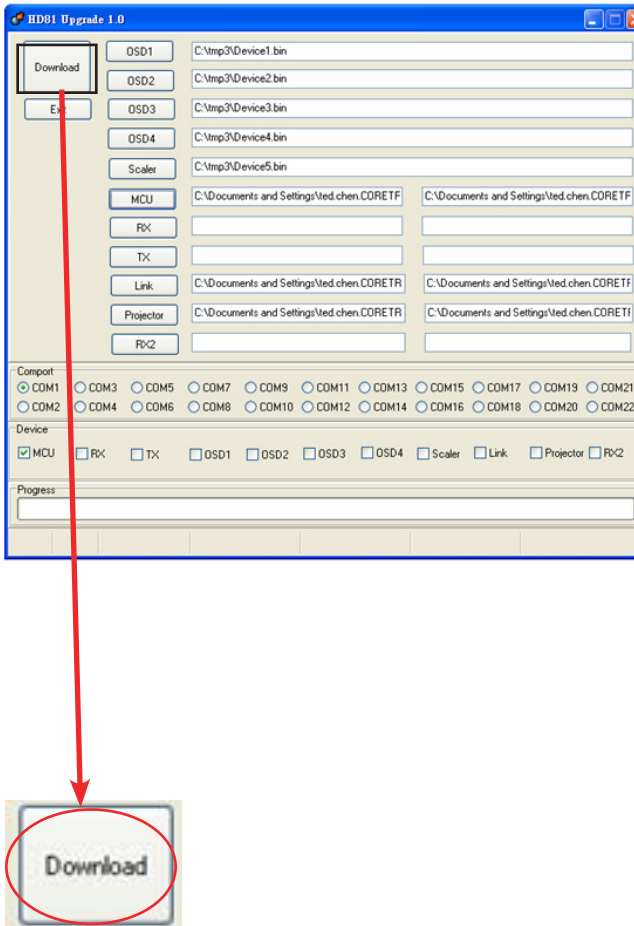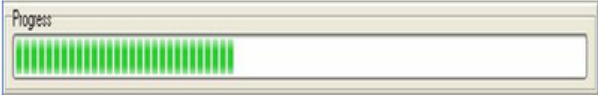
Setup Procedure

Note:When upgrade the Scaler,please keep the power on .(If the power cut off,it must change IC U33,U34)

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Controller Box to PC.	
2	Main Board switch setting (control box)	Set switch to 1& 2 On.	
3	Plug in the power cord into the control box		
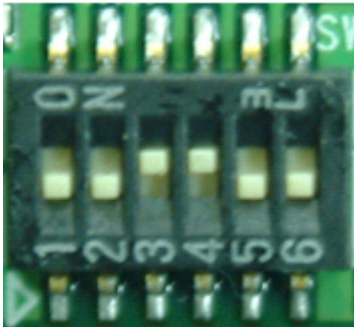
Upgrade Procedure

No	Step	Procedure	Photo
1	Execute Upgrade-HD81.exe Program	Double Click "UpgradeHD81" Program.	
2	Setting	1. Select com Port to your real connection port number. 2. Select Device to "Scaler". 3. Select Box to the upgrade file, U33 Devies5.bin. And then U34 Devies5.bin will auto load in	
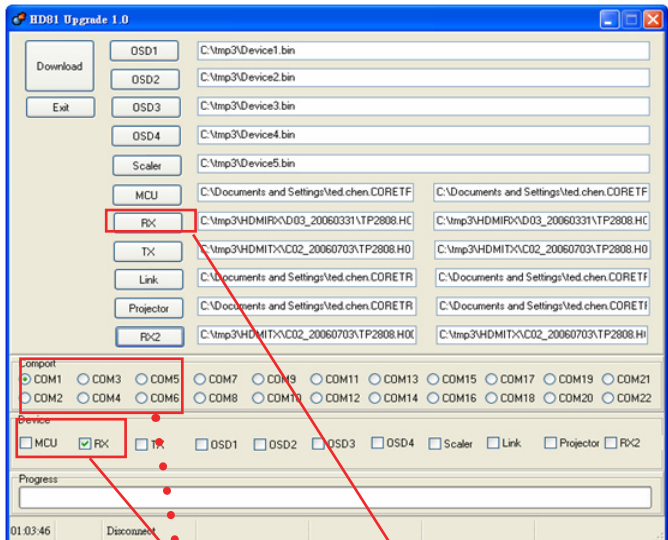
No	Step	Procedure	Photo
3	Process	Unplug the power cable of Controller box and plug-in power to Controller box again. Please check the Led on Controller box front panel is red.	
4	Execute upgrade process	Press "Download" button to start upgrade.	
5	Process	Upgrade will auto run after 5 seconds.	
6	Upgrade finish	When Scaler update complete, "Update Comlete" will appear. Note: If you want to upgrade the next unit, you can start to upgrade Projector RX from No.4	
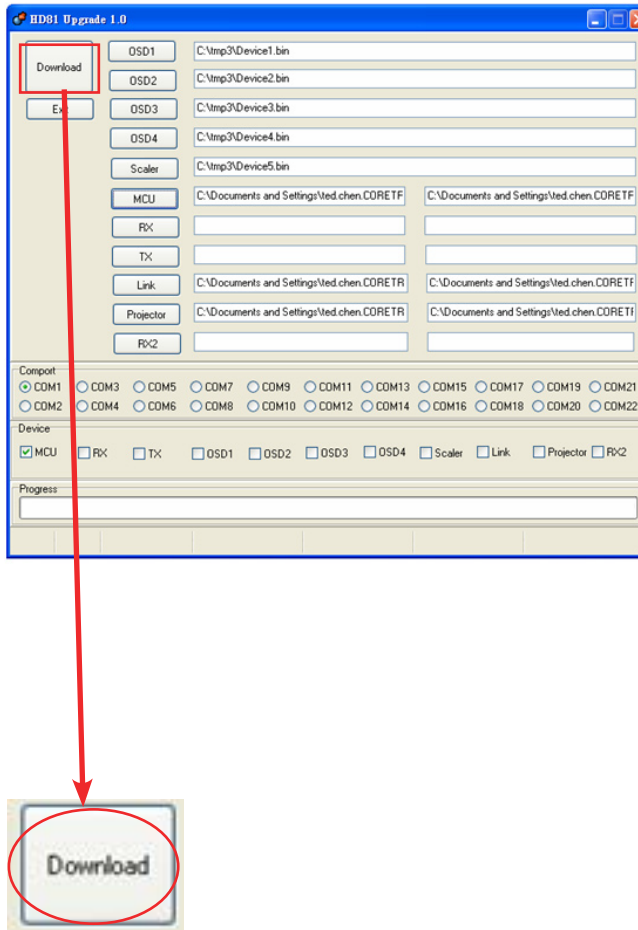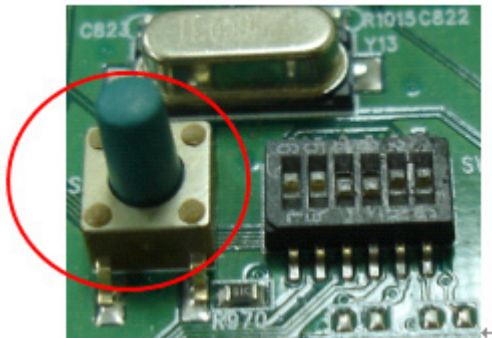
5-6 RX Upgrade (Location: HDMI RX U132)
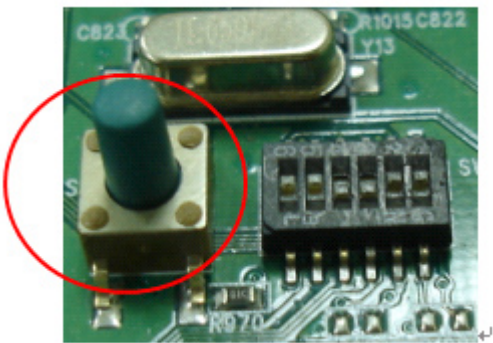
Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Controller Box to PC.	
2	Main Board switch setting	Set switch to 3& 4 On.	
3	Plug in the power cord into the control box		
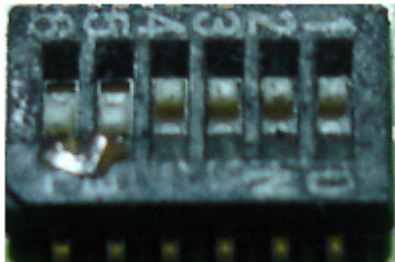
Upgrade Procedure

No	Step	Procedure	Photo
1	Execute Up-gradeHD81.exe Program	Double Click "Upgrade-HD81" Pro-gram.	
2	Setting	1. Select com Port to your real connec-tion port num-ber. 2. Select De-vice to "RX". 3. Select Box to the upgrade file:(HDMI_RX Rev......) TP2808.H00. Note: *.H00 and *.H01 must be in the same folder.	

No	Step	Procedure	Photo
3	Execute upgrade process	Press "Download" button to start upgrade.	
4	Process	Unplug the power cable of Controller box and Plug-in power to Controller box again.	
5	Process	Push and hold the button, ISP.(TX&RX), near the switch.(on the control box)	
6	Process	Push Up key and Down key at the same time. Check the Led is blue.	
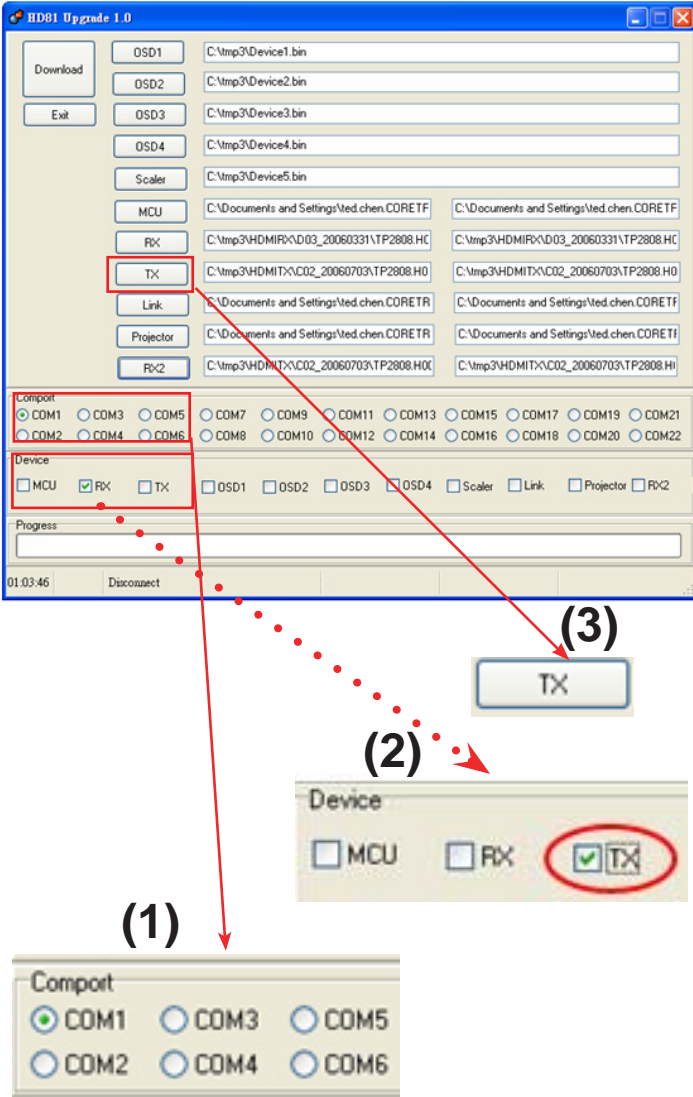
No	Step	Procedure	Photo
7	Process	Wait for 5 seconds, and then release button, ISP (TX& RX). Upgrade will auto run.	
8	Upgrade finish	When Controller box RX update complete, "Update Complete" will appear. Note: If you want to upgrade the next unit, you can start to upgrade Box RX from No.3	
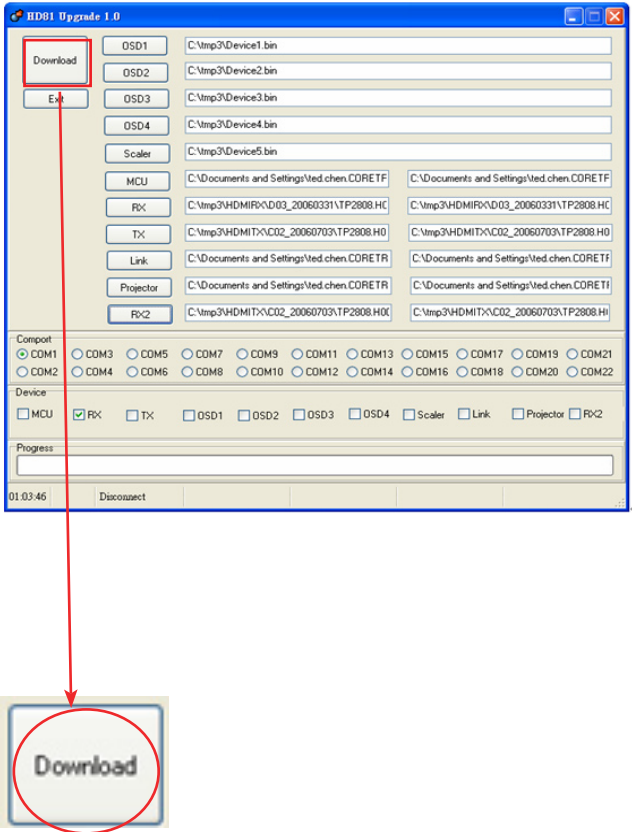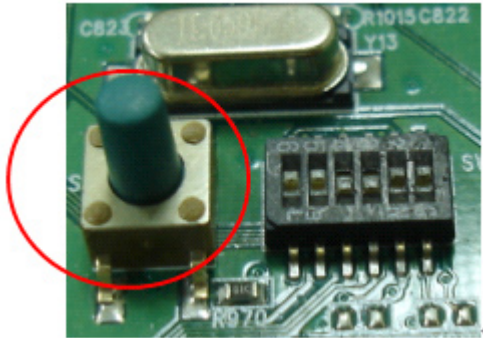
5-7 TX Upgrade (Location: U167)
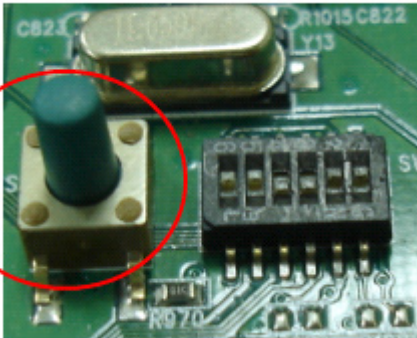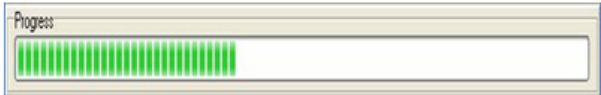
Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Controller Box to PC.	
2	Main Board switch setting	Set switch to 5& 6 On.	
3	Plug in the power cord into the control box		

Upgrade Procedure

No	Step	Procedure	Photo
1	Execute Up-gradeHD81. exe Program	Double Click "Upgrade-HD81" Program.	upgradeHD81
2	Setting	1. Select com Port to your real connection port number. 2. Select Device to "TX". 3. Select Box to the upgrade file: (HDMI TX......) TP2808.H00. Note: *.H00 and *.H01 must be in the same folder.	

No	Step	Procedure	Photo
3	Execute upgrade process	Press "Download" button to start upgrade.	
4	Process	Unplug the power cable of Controller box and Plug-in power to Controller box again.	
5	Process	Push and hold the button, ISP(TX&RX), near the switch. (on the control box)	
6	Process	Push Up key and Down key at the same time about 5 seconds and then release the up& down key. Check the Led is blue.	

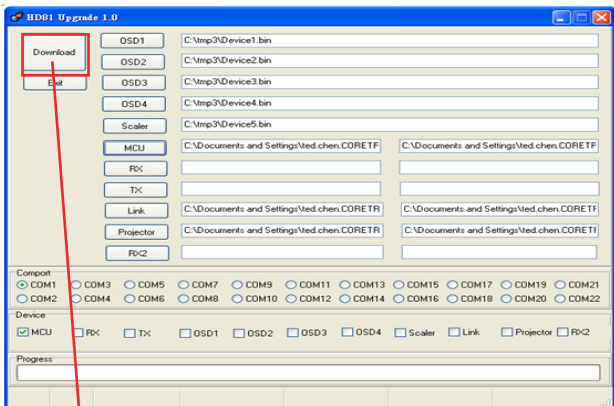| No	Step	Procedure	Photo
7	Process	Wait for 5 seconds, and then release button, ISP(TX&RX). Upgrade will auto run.	
8	Upgrade finish	When Controller box TX update complete, "Update Comlete" will appear. Note: If you want to upgrade the next unit, you can start to upgrade Box RX from No.3	
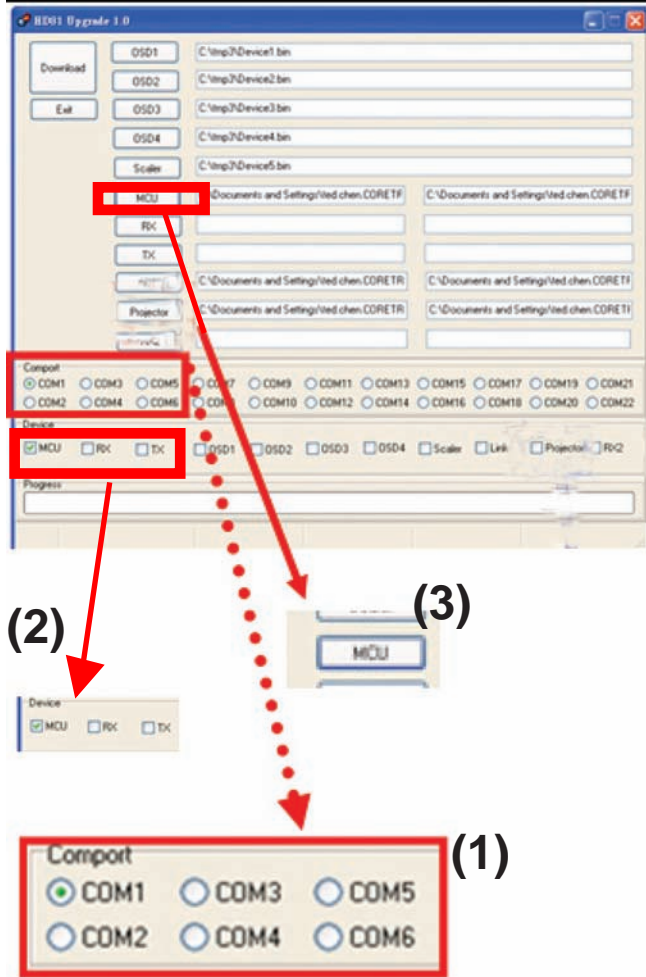
Part II   HD81/HD81-LV Projector
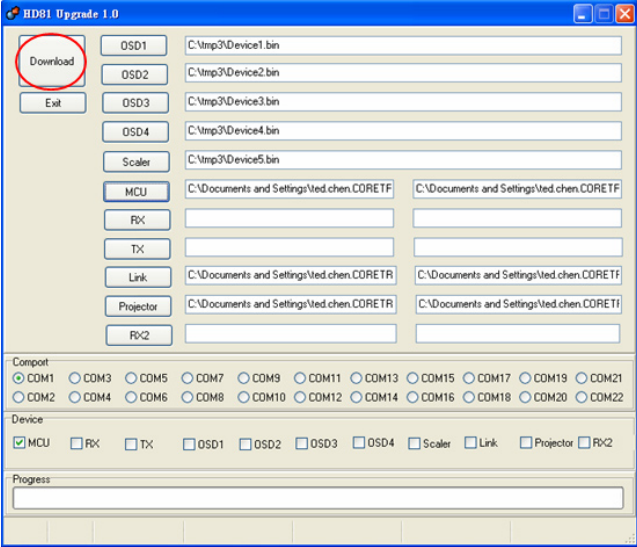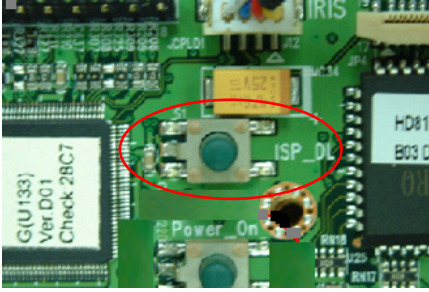
5-1 MCU Upgrade (Location: U25)

Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Projector to PC.	
2	Main Board switch setting	Set switch to 1& 2 On. Location: SW1 (on the projector formatter board)	
3	Plug in the the power cord into the projector		

Upgrade Procedure
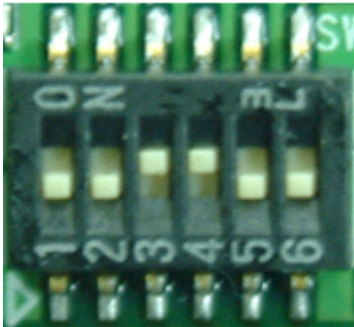
No	Step	Procedure	Photo
1	Execute Up-gradeHD81. exe Program	Double Click "Upgrade-HD81" Program.	upgradeHD81
2	Setting	1. Select com Port to your real connec tion port num ber. 2. Select De-vice to "MCU". 3. Select MCU to the upgrade file: (main MCU ...) H81C03.H00.	

No	Step	Procedure	Photo
3	Execute upgrade process	Press "Download" button to start upgrade.	
4	Process	Unplug the power cable of HD81 projector.	
5	Process	Push and hold the button(ISP_DL) on format board. (projector)	
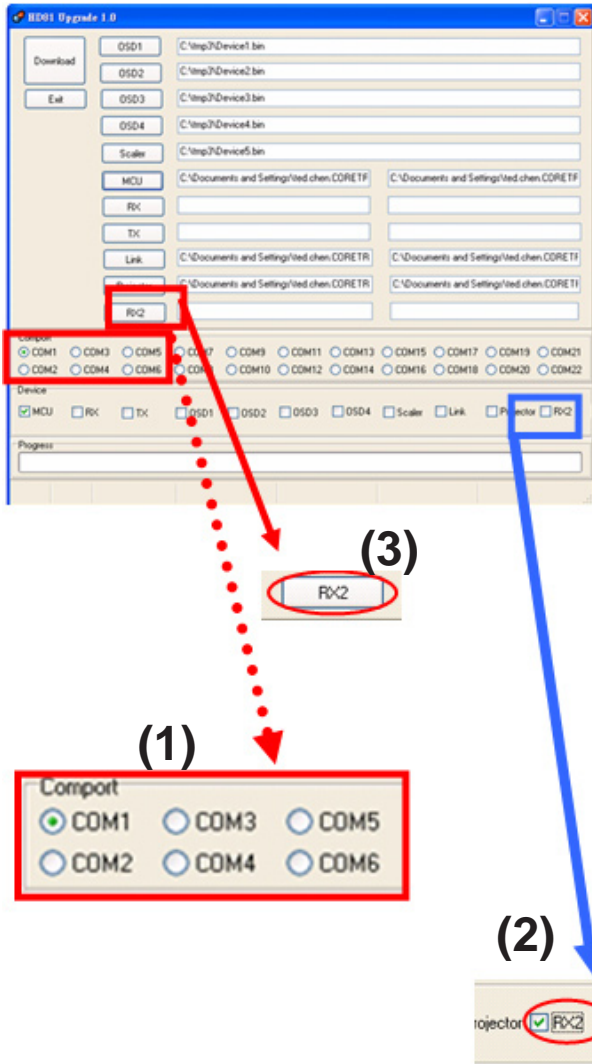
No	Step	Procedure	Photo
6	Setting	Plug-in power to HD81 box.	
7	Process	Wait for 5 seconds, then release left key. Upgrade will auto run.	
8	Upgrade finish	When MCU update complete, "Update Complete" will appear. Note: If you want to upgrade the next unit, you can start to upgrade MCU from No.3	
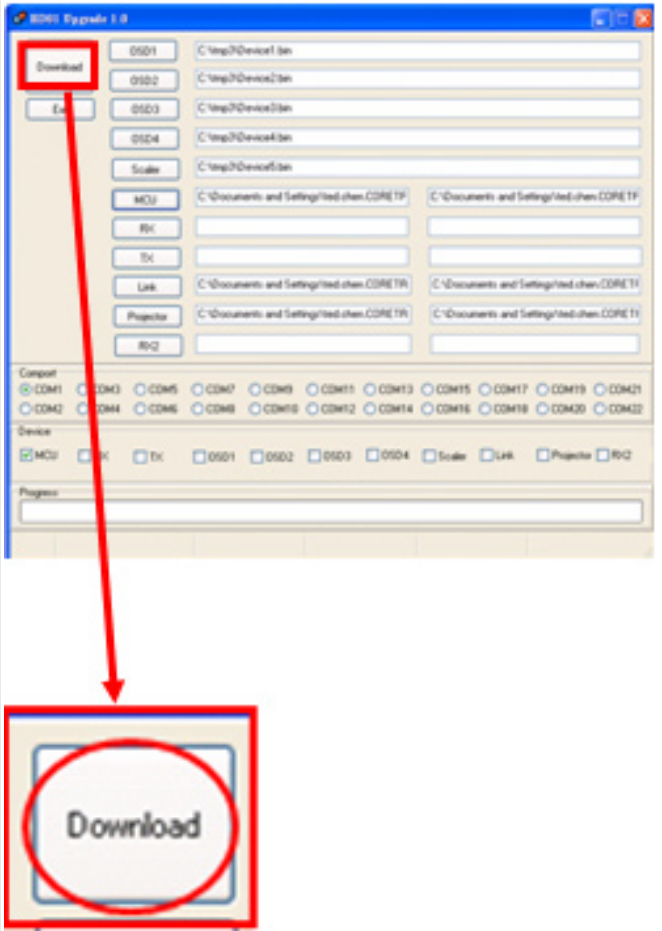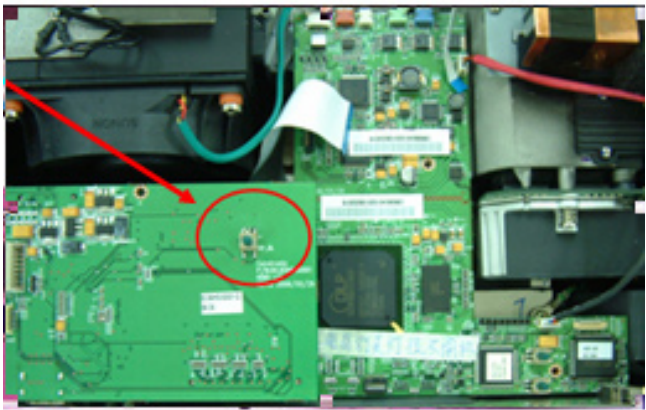
5-2 RX Upgrade (Location: U8)
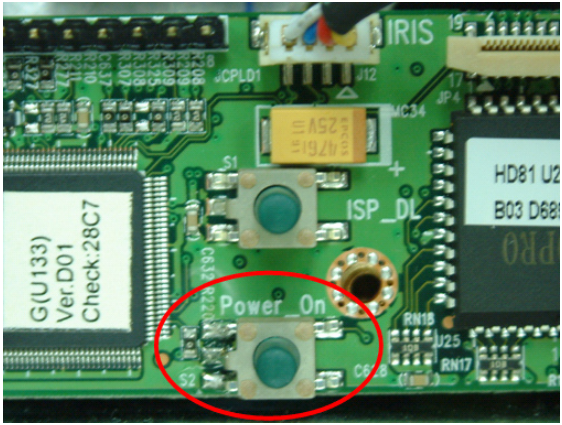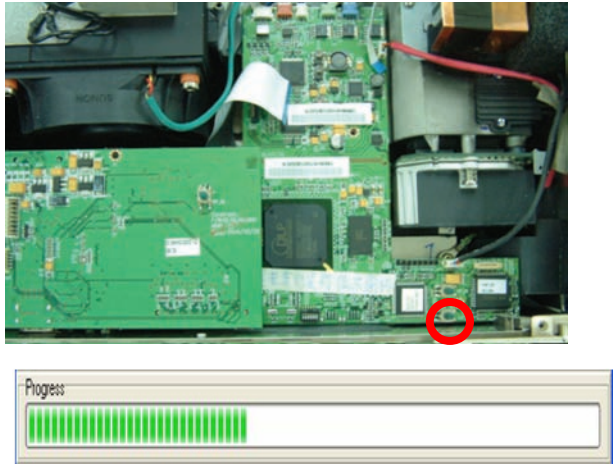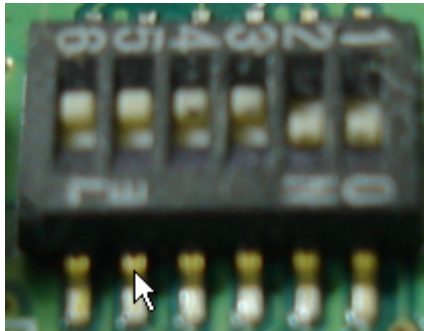
Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	Connect RS232 cable from Projector to PC.	
2	Main Board switch setting	Set switch 3& 4 On.	
3	Plug in the power cord		

Upgrade Procedure

No	Step	Procedure	Photo
1	Execute UpgradeHD81. exe Program	Double Click "UpgradeHD81" Program.	
2	Setting	1. Select com Port to your real connection port number. 2. Select Device to "RX2". 3. Select Projector to the upgrade file: (HDMI_RX2...) C01.H00. Note: *.H00 and *.H01 must be in the same folder.	

No	Step	Procedure	Photo
3	Execute upgrade process	Press "Download" button to start up-grade.	
4	Process	Push and hold the ISP_DL button on the I/O board.	
5	Process	Unplug the power cable of the projector and Plug-in power to the projector again.	

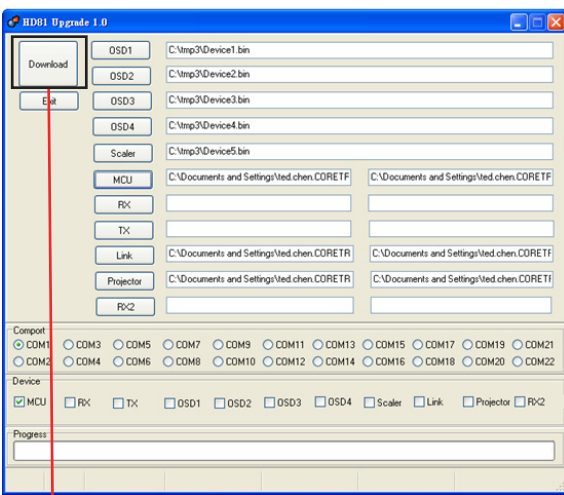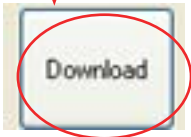| No	Step	Procedure	Photo
6	Execute upgrade process	Push Power key on the projector.	
7	Process	Wait for 5 seconds, and then release the power on button. Upgrade will auto run.	
8	Process	When Projector RX update complete, "Update Comlete" will appear Note: If you want to upgrade the next unit, you can start to upgrade Projector RX from No.3	
9	Trun back to 1&2 on	After upgrading, the switch have to turn back to 1 & 2 On. (Inculding projector and box)	

EDID Key-in Procedure

Extended Display Identification Data is a VESA standard data format that contains basic information about a display device and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the HD81/HD81-LV and serial number.

The information is stored in the display and is used to communicate with the system through a Display Data Channel (DDC), which sites between the display device and the PC graphics adapter. The system uses this information for configuration purposes, so the HD81/HD81-LV and system can work together.

Note: If a display device has digital input ports, like DVI or HDMI, but without EDID in its main board, the display device will show no image while the input source is digital signal.

6-1 Equipment Needed
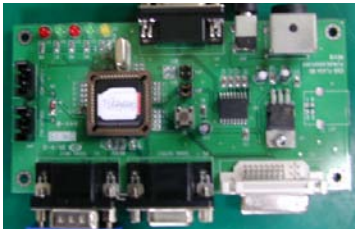
Software

-        EDID.exe

-        HD5000EDID_C02.ini

-         HD81/HD81-LVEDID_Digital_A.ini

Note:The EDID for HD81/HD81-LV is the same, here we take HD81 as an example
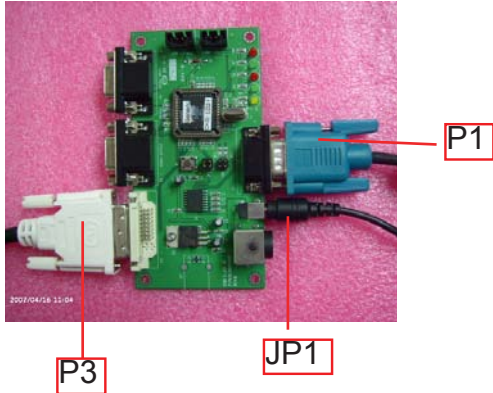
Hardware

-        HD81/HD81-LV

-        PC

-        RS 232 9 pin cable (Male to Female) pin to pin

-        Power Cord for HD81

-        HDMI Cable

-        EDID Fixture (JP3 must be closed)

-        Power Adapter for Fixture and Power Cord
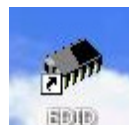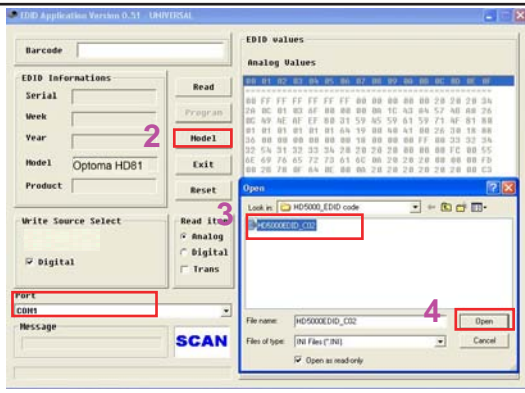
Item	Photo	Item	Photo
HD81 Projector		RS-232 Cable (F to M)	
PC		DVI Cable	
EDID **Fixture P/N:** **80.58704.001**		HDMI-DVI Adapter	
Power Adapter for Fixture			

6-2 HD81/HD81-LV Controller Box

Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	1. Power Adapter to Fixture JP1. 2. Fixture P1 to PC COM1 Port. 3. Fixture P3 to Controller Box from AV receive Port.	
2	Power On Fixture	Power On Fixture.	

EDID Key-In Procedure

No	Step	Procedure	Photo
1	Execute EDID Program	Double Click "EDID" Progra.	
2	Chose Model	1. Check com port. 2. Click the "Model" item 3. Choose the source file 4. Open it.	

No	Step	Procedure	Photo
3	Key in Series number	1. Key in the Series Number : OR012006123456789 Into the barcode item. 2. Press "Program" button	
4	Change Cable to HDMI	Press OK when the cable is ready.	
5	Upgrade finish	When the "OK" message display, it means upgrade finish.	
6	Check Process	1. Slect "Digital" item. 2. Press "Read" button. 3. Digital information will show in this area. If EDID information is correct close EDID program to finish upgrade.	

6-3 HD81/HD81-LV Projector

Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	1. Power Adapter to Fix ture JP1. 2. Fixture P1 to PC COM1 Port. 3. Fixture P3 to Projector HDMI Port.	
2	Power On Fixture	Power On Fixture.	

EDID Key-In Procedure

No	Step	Procedure	Photo
1	Execute EDID Program	Double Click "EDID" Progra.	
2	Chose Model	1. Check com port. 2. Click the "Model " item 3. Choose the source file 4. Open it.	

No	Step	Procedure	Photo
3	Key in Series number	1. Key in the Series Number : OR012006123456789 Into the barcode item. 2. Press "Program" button	
4	Change Cable to HDMI	Press OK when the cable is ready.	
5	Upgrade finish	When the "OK" message display, it means upgrade finish.	
6	Check Process	1. Slect "Digital" item. 2. Press "Read" button. 3. Digital information will show in this area. If EDID information is correct close EDID program to finish upgrade.	

Appendix

Serial Number System Definition

Serial Number for Projector

A BBB Y WW AAAACP EEEE
1   2   3   4   5 6   7

1 : Q=Optoma,B~Z=OEM

2 : Product Code (ex: 87T=HD81-LV)

3 : Y = Last Number of the Year (ex: 200<u>7</u> - 7)

4 : Week of Year

5 : Fixed code (ex: AAAA)

6 : Manufacture location&Production type(ex: C=China,P=Projector)

7 : Serial Code (from 0001~)

EX : Q87T701AAAACP0001

This label "Q87T701AAAACP0001" represents the whole serial number for HD81-LV,including Manufacture location.It is produced on 01s-week of 2007 for universal area and its serial code is 0001.

PCBA Code Definition

PCBA Code for Projector

$$\underset{\underset{1}{\bigcirc}}{\underline{A}} \quad \underset{\underset{2}{\bigcirc}}{\underline{B}} \quad \underset{\underset{3}{\bigcirc}}{\underline{XXXXXXXXX}} \quad \underset{\underset{4}{\bigcirc}}{\underline{C}} \quad \underset{\underset{5}{\bigcirc}}{\underline{XXX}} \quad \underset{\underset{6}{\bigcirc}}{\underline{EEEE}}$$

①	:	ID ——— C: M/B B: DMD/B
②	:	Vendor Code
③	:	P/N
④	:	Revision
⑤	:	Date Code
⑥	:	S/N

First drawing parts list (ASSY BASE HOUSING HD81-LV):

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	75.87T02G001	A	BUY ASSY BASE HOUSING HD81-LV	1
2	70.87T05G001	A	ASSY ELEVATOR FOOT RIGHT MODUL	1
3	70.87T06G001	A	ASSY ELEVATOR FOOT LEFT MODULE	1
4	61.83C10G001	A	ELEVATOR SPRONG 0.8*4.5 W.D	2
5	52.89A01G003	A	ADJUST FOOT RUBBER EP910	2
6	75.87T06G001	A	BUY ASSY PRE-ELEVATOR RIGHT HD81-LV	1
7	75.87T01G001	A	BUY ASSY PRE-ELEVATOR LEFT HD81-LV	1
8	75.82B28G001	A	BUY ASSY BRACKET LVPS HOLDER 5	1
9	70.85H09G001	A	ASSY LVPS MODULE HD81	1
10	51.00007G001	A	PLASTIC SCREW W3.0*6.4 PG S-30	3
11	85.1A23G060	A	SCREW PAN MECH M3*6 NI	2
12	61.82K16G001	A	SCREW M4 AC GROUNDING	2
13	61.89532G001	A	HEXSPACER H29 4100MP	4
14	70.85H10G001	A	ASSY LAMP DRIVER MODULE HD81	1
15	70.82B04G001	A	ASSY 6025 BLOWER MODULE 5100MP	1
16	61.87340G001	A	STAND OFF M3*4L D8.0 2100MP	2
17	52.85H19G001	A	GR-d 24.0*73.7*3.0mm THERMAL P	1
18	52.80F02G001	A	SPONGE CR250 100*101.4mm FOR REAR	1
19	51.83C20G001	A	AIR DUCT FOR CW_ROD PC+ABS EP9	1
20	41.80502G001	A	EMI-GASKET-W13-H10_5-L30	1
21	41.80502G001	A	EMI GASKET 13*2*30	1
22	85.WA123G060	A	SCREW PAN TAP M3*6 NI	15
23	85.TA326G050	A	SCREW CAP TAP M2.6*5 WASHER	2
24	61.85H16G001	A	BRASS FOIL LVPS BOTTOM HD81	1
25	61.83C17G001	A	AL PLATE FOR LVPS EP910	1
26	51.83C13G001	A	MYLAR DMD BOTTOM HOLE EP910	1
27	52.82B06G001	A	AIRTIGHT RUBBER FOR FAN BRACKE	1
28	52.85H08G001	A	GR-Hm 36.8*19.5*2.0 THERMAL PA	1
29	52.85H17G001	A	GR-Hm 85*4.5*2 THERMAL PAD	1
30	61.83C21G001	A	CLAMP FOR LVPS CABLE.PINGOOD W	1
31	52.83C08G001	A	AIR-TIGHT SPONGE-I BOTTOM EP910	1
32	41.83C15G001	A	EMI GASKET 10*6.5*157	1
33	61.85H01G001	A	HEX SPACER M3-M3 V5mm L22mm CO	2
34	41.83C16G001	A	EMI GASKET W7*H4.5*L66	1
35	86.03C23G035	A	AIR-TIGHT SPONGE-I BOTTOM EP910	1
36	52.85H08G002	A	SPONGE(F12) FOR LVPS HD81	1
37	52.83C16G001	A	GR-bffujpoly Sarcon)/20*20*3 mm	1
38	51.80536G001	A	WIRE SADDLE WCL-4 "KANG-YANG",	1
39	61.85H18G001	A	FORMAT BOARD BRACKET SECC HD81	1
40	51.85H20G001	A	ANTI LIGHT FOR AIR DUCT HD81	1

SCALE 2.5

Part Name:83C-BOTTOM-MODULE.PRT Version: D1/27*/Design   Drawing Name: 70-83C01G001.DRW

DRAWN LUKE 96/02/05   Coretronic Corporation
NAME: ASSY BASE HOUSING HD81-LV
TITLE HD81-LV PART NO. 70.87T05G001 Rev. A
A LUKE 96/02/05 FORMAL RELEASE X
REV INITIATOR DATE DESCRIPTION ECR NO.
SCALE 1:1 UNIT mm MATERIAL FINISH A2 SHEET 1 OF 1

L04-3016F2 Rev.C

Second drawing parts list (ASSY REAR COVER MODULE HD81-LV):

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	75.87T07G001	A	BUY ASSY REAR COVER HD81-LV	1
2	51.85H29G001	A	MYLAR FRPP REAR FAN CHANNEL HD	1
3	41.83C07G001	A	EMI GASKET W10*H15*L25	1
4	51.85H23G001	A	ID LABEL HD81	1

SCALE 1:2

Part Name:85H-REAR-MODULE.PRT   Ver:D1/15*/Design   Drawing Name:85H-ASSY-REAR-COVER-MODULE.DRW

DRAWN LUKE 96/02/05   Coretronic Corporation
NAME: ASSY REAR COVER MODULE HD81-LV
TITLE HD81-LV PART NO. 70.87T02G001 Rev.A
A LUKE 96/02/05 FORMAL RELEASE X
REV INITIATOR DATE DESCRIPTION ECR NO.
SCALE 1:1 UNIT mm MATERIAL FINISH A3 SHEET 1 OF 1

L04-3016F3 Rev.C

Note: Please refer to RSPL to updated part numbers.

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	52.85H04G002	A	TOP COVER SPONGE 60mm HD81	2
2	41.83C10G001	A	EMI TAPE W30×L300	2
3	41.85H01G001	A	EMI GASKET W8*H8*L210 HD81	1
4	42.83C06G001	B	CABLE FFC 16P 200mm KAYPAD TO	1
5	85.WA123G060	A	SCREW PAN TAP M3×6 Ni	3
6	52.85H07G001	A	TOP SPONGE 95MM HD81	1
7	75.87T03G001	A	BUY ASSY TOP COVER HD81-LV	1
8	70.87T04G001	A	ASSY KEYPAD MODULE HD81-LV	1
9	41.83C11G001	B	KEYPAD TAPE W38*L254mm EP910	1
10	41.83C18G001	B	EMI GASKET W13*H2*L210mm	1
11	41.83C20G001	B	EMI TAPE W78MM×L128MM	1
12	41.83C21G001	A	EMI GASKET W13*H5*L50MM	1
13	52.83C04G001	A	LIGHTCUT SPONGE FOR FR-IR EP91	1

SCALE 2:5

DRAWN LUKE 96/02/05
Coretronic Corporation
NAME : ASSY TOP COVER MODULE
TITLE HD81-LV PART NO. 70.87T03G001 Rev.A
SCALE 1:1 UNIT mm A3 SHEET 1 OF 1

REV	INITIATOR	DATE	DESCRIPTION	ECR NO.
A	LUKE	96/02/05	FORMAL RELEASE	X

Part Name:85H-TOP-MODULE.PRT   Ver:A/0+/Design   Drawing Name:85H-ASSY-TOP-COVER-MODULE.DRW   L04-3016F3 Rev.C

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	41.83C12G001	A	EMI TAPE W5*L213mm	1
2	51.83C19G001	A	LED TRANSPARENT BAR EP910	1
3	51.85H18G03I		KEY PAD BUTTON HD81-LV	1
4	61.83C09G001	A	KEYPAD BRACKET	1
5	80.85H04G001	A	PCBA KEYPAD HD81	1
6	85.1A323G060	A	Screw Pan M3x6 Black	3

DRAWN LUKE 96/02/05
Coretronic Corporation
NAME : ASSY KEYPAD MODULE HD81-LV
TITLE HD81-LV PART NO. 70.87T04G001 Rev.A
SCALE 1:1 UNIT mm A3 SHEET 1 OF 1

REV	INITIATOR	DATE	DESCRIPTION	ECR NO.
A	LUKE	96/02/05	FORMAL RELEASE	X

Part Name:85H-KEYPAD-ASM.PRT   Ver: / /   Drawing Name:85H-ASSY-KEYPAD-MODULE.DRW   L04-3016F3 Rev.C

Note: Please refer to RSPL to updated part numbers.

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	51.83C16G001	A	ELEVATOR BODY	1
2	51.83C21G011	A	ELEVATOR FOOT HD81-LV	1
3	52.83C03G001	A	ELEVATOR FOOT RUBBER	1
4	85.1F123G060	A	SCREW PAN MECH W/SF M3*6 Ni GR	1
5	52.83C21G001	A	SILIONE BUFFER 0.1t FOR ELEVATOR	1

DRAWN LUKE 96/02/05

Coretronic Corporation

NAME :
ASSY ELEVATOR FOOT RIGHT

TITLE HD81-LV PART NO. 70.87T05G001 Rev. A

LIMITS UNLESS OTHERWISE NOTED			
1-6	±0.1	300-1000	±0.8
6-30	±0.2	1000-2000	±1.2
30-100	±0.3	2000-	±2.0
100-300	±0.5	ANGLE	±0.5°

SCALE 1.000 UNIT mm MATERIAL – FINISH – A4 SHEET 1 OF 1

| A | LUKE | 96/02/05 | FORMAL RELEASE | X | | | | |
| REV | INITIATOR | DATE | DESCRIPTION | ECR NO. | | | | |

Part Name: 70-83C07G001 .PRT   Version: D1/1/Design   Drawing Name: 70-83C07G001 .DRW   L04-3016F4 Rev.C

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	51.83C16G001	A	ELEVATOR BODY	1
2	51.83C21G011	A	ELEVATOR FOOT HD81-LV	1
3	52.83C03G001	A	ELEVATOR FOOT RUBBER	1
4	85.1F123G060	A	SCREW PAN MECH W/SF M3*6 Ni GR	1
5	52.83C21G001	A	SILIONE BUFFER 0.1t FOR ELEVATOR	1

DRAWN LUKE 96/02/05

Coretronic Corporation

NAME :
ASSY ELEVATOR FOOT LEFT

TITLE EP910 PART NO. 70.87T06G001 Rev. A

LIMITS UNLESS OTHERWISE NOTED			
1-6	±0.1	300-1000	±0.8
6-30	±0.2	1000-2000	±1.2
30-100	±0.3	2000-	±2.0
100-300	±0.5	ANGLE	±0.5°

SCALE 1:1 UNIT mm MATERIAL – FINISH – A4 SHEET 1 OF 1

| A | LUKE | 96/02/05 | FORMAL RELEASE | X | | | | |
| REV | INITIATOR | DATE | DESCRIPTION | ECR NO. | | | | |

Part Name: 70-83C08G001 .PRT   Version: D1/1/Design   Drawing Name: 70-83C08G001 .DRW   L04-3016F4 Rev.C

Note: Please refer to RSPL to updated part numbers.

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
61.83C20G001		A	AL SHIELDING 0.1t FOR LAMP COVER EP910	1
2	51.83C06G021	A	LAMP COVER HD81-LV	1
3	41.82G12G002	A	EMI GASKET W10*L20*H2.5mm	1

SCALE 1:2

SCALE 1:2

SCALE 1:2

DRAWN	LUKE	96/02/05	Coretronic Corporation		
ENG.					
CHK.			NAME :		
APPD.			LAMP COVER MODULE HD81-LV		
TITLE	HD81-LV		PART NO.	70.87T07G001	Rev.A
SCALE	UNIT	MATERIAL	FINISH		SHEET
1:1	mm	–	–	A4	1 OF 1

LIMITS UNLESS OTHERWISE NOTED
1-6 ±0.1 300-1000 ±0.8
6-30 ±0.2 1000-2000 ±1.2
30-100 ±0.3 2000- ±2.0
100-300 ±0.5 ANGLE ±0.5°

A	LUKE	96/02/05	FORMAL RELEASE		
REV	INITIATOR	DATE	DESCRIPTION	ECR NO.	

Part Name: 83C-LAMP-MODULE.PRT Version: / 0+/   Drawing Name: 70-83C18G001 .DRW   L04-3016F4 Rev.C

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	80.R0106G001	B	PCBA IR BOARD WITH IR WIRE VX3	1
2	61.R0109G001	A	HEX SPACER M3 W5mm L20mm COPPE	6
3	61.R0112G001	A	CONDUCT IO OF FROM END METAL V	1
4	75.R0102G001	A	STAMPING FOOT MODULE VX3000; '	4
5	70.85H17G001	A	ASSY CONDUCT IO OF BACK END ME	1
6	85.CA323G060	A	SCREW INNER HEX M3*6 NI BLACK	8
7	42.R0102G001	A	WIRE C/B3 TO M/B 18P 90mm VX30	1
8	42.R0103G001	A	WIRE. POWER TO M/B 8P 90mm VX3	1
9	42.R0108G001	A	CABLE FFC KEYPAD TO M/B 12P 1P	1
10	51.R0102G001	A	DOOR-LOCK-RIB BLACK DL-003	1
11	85.CA323G060	A	SCREW INNER HEX M3*6 NI BLACK	10
12	51.R0107G001	A	MAIN BOARD MYLAR t=0.4 MYLAR V	1
13	51.R0105G001	A	AXLE FOR COVER PDM BLACK	1
14	51.R0104G001	A	GEAR WHEEL FOR COVER PDM BLACK	1
15	61.R0103G001	A	FRONT BEZEL ALUMINUM "ANODIZED	1
16	61.R0106G001	D	LATERAL PANEL ALUMINUM "ANODIZ	2
17	61.R0108G002	C	POWER BUTTON ALUMINUM VX3000	1
18	85.4A323G040	B	SCREW FLAT MECH M3*4 BLACK "GR	2
19	51.81R47G001	A	DOOR LOCK , DL-400D BLACK PING	1
20	85.1A1AFG032	A	SCREW PAN MECH #6-32*1/4 Ni	4
21	85.005AGG065	A	SCREW HEX I/O #4-40*H5*L6.5 NI	6
22	70.R0102G001	A	FRONT PANEL(RIGHT) ALUMINUM "A	1
23	70.R0103G001	A	ASSY TOP COVER HD3000	1
24	70.85H20G001	A	ASSY KEYPAD HD5000	1
25	80.87T06G001	B	PCBA CONNECTOR-2 For HD81-LV	1
26	61.R0102G021	A	BASE SECC "ANODIZED" HD81	1
27	61.R0104G041	A	FRONT PANEL(LEFT) ALUMINUM "AN	1
28	80.87T05G001	B	PCBA MAIN BOARD FOR HD81-LV	1
29	80.85H08G001	B	PCBA CONNECTOR-1 BOARD FOR HD5	1
30	80.85H09G001	B	PCBA CONNECTOR-3 BOARD FOR HD5	1
31	51.85H13G001	A	POWER SUPPLY MYLAR t=0.4 MYLAR	1
32	75.85H05G002	A	ASSY POWER SUPPLY MODULE HD500	1
33	42.85H04G001	A	WIRE AC PLUG TO POWER 2P 50mm	1

SCALE 1:5

DRAWN	LUKE	96/02/05	Coretronic Corporation		
ENG.					
CHK.			NAME :		
APPD.			HD5000 VEDIO BOX FOR HD81-LV		
TITLE	HD81-LV		PART NO.	70.87T08G001	Rev.A
SCALE	UNIT	MATERIAL	FINISH		SHEET
1:1	mm			A3	1 OF 1

LIMITS UNLESS OTHERWISE NOTED
1-6 ±0.1 300-1000 ±0.8
6-30 ±0.2 1000-2000 ±1.2
30-100 ±0.3 2000- ±2.0
100-300 ±0.5 ANGLE ±0.5°

A	LUKE	96/02/05	FORMAL RELEASE	X	
REV	INITIATOR	DATE	DESCRIPTION	ECR NO.	

Part Name:HD5000-SYSTEM-MODULE.PRT   Ver:/+/   Drawing Name:HD5000-SYSTEM-MODULE.DRW   L04-3016F3 Rev.C

Note: Please refer to RSPL to updated part numbers.

SCALE ~11:30

ITEM	PART_NO	PART_NAME	Q'TY	REMARK
13	70.85H03G001	ASSY DMD BOARD MODULE HD81-LV	1	
12	70.87T10G001	SUB ASSY OPTICAL MODULE HD81-LV	1	
11	61.82B37G001	HEAT SINK SPRING "GREEN"	4	
10	61.82B36G001	SCREW M3x10 IHSPC "GREEN"	4	
9	61.82B34G001	DMD-PCB PRESSCOVER 5100MP "GREEN"	1	
8	61.85H14G001	DMD-MASK HD81	1	
7	61.82B04G001	DMD HEATSINK AL 5100MP "GREEN"	1	
6	52.85H11G001	SARCON GR-Hm 20mmx15mmx0.3mm	1	
5	52.82B03G001	DUST COVER RUBBER F12 5100MP "GREEN"	1	
4	51.83C30G001	MYLAR INSULATION FOR DMD HEATSINK EP910	1	
3	51.82B43G001	INSULATOR MYLAR BETWEEN DMD-BD AND HEAT SINK "GREEN"	1	
2	48.85HDMGD02	DMD [400X1050 PIXEL 0.95 SXGA+ 12 LVDS TYPE A "GREEN"	1	
1	11.00500G001	CNNT 252P DMD LGA SOCKET PE025223-5040-100 FOXCONN "GREEN"	1	

DRAWN	LUKE	96/02/05	Coretronic Corporation
ENG.			
CHK.			NAME: ASSY OPTICAL ENGINE MODULE HD81-LV
APPD.			

		LIMITS UNLESS OTHERWISE NOTED				TITLE	HD81-LV	PART NO. 70.87T09G001	Rev.A
		1-6	±0.1	300-1000	±0.8	SCALE	UNIT	MATERIAL	FINISH
		6-30	±0.2	1000-2000	±1.2	0/1	mm	-	-
A	LUKE	96/02/05	FORMAL RELEASE	X	30-100	±0.3	2000-	±2.0	SHEET 1 of 1
Rev.	Initiator	Date	Description	ECR NO.	100-300	±0.5	ANGLE	±0.5°	A3

L04-3016F3 Rev.C

SCALE 0.420

ITEM	PART_NO	PART_NAME	Q'TY	REMARK
16	85.1A126G060	SCREW PAN MECH M2.6x6 NI	5	
15	85.0A326G040	SCREW PAN MECH M2.6x4 BLACK "GREEN"	3	
13	75.85H02G002	BUY ASSY ZOOM RING HD81-LV	1	
12	70.82B29G001	ASSY-LENS-MODULE-5100MP	1	
11	70.87T11G001	ASSY COLOR WHEEL HD81-LV	1	
10	70.82B06G001	ASSY ENGINE BOTTOM MODULE 5100MP "GREEN"	1	
9	70.85H19G001	ASSY ENGINE BASE MODULE HD81-LV	1	
8	61.0075G001	SHOULD SCREW M2X5 D2.5X3.3 4200MP "GREEN"	2	
7	51.82B25G001	LAMP AIRFLOW GUIDER PPS 4200MP "GREEN"	1	
3	23.82B20G011	S-TIH6 CONDENSER-2 FOR SXGA+ "GREEN"	1	
2	23.82B20G001	BK7 CONDENSER-1 FOR SXGA+ "GREEN"	1	
1	23.82B06G001	ISUZU RELAY LENS FOR SXG+ "GREEN"	2	

DRAWN	VICKI	96/02/05	Coretronic Corporation
ENG.			
CHK.			NAME: SUB ASSY OPTICAL MODULE HD81-LV
APPD.			

		LIMITS UNLESS OTHERWISE NOTED				TITLE	HD81-LV	PART NO. 70.87T10G001	Rev.A
		1-6	±0.1	300-1000	±0.8	SCALE	UNIT	MATERIAL	FINISH
		6-30	±0.2	1000-2000	±1.2		mm		A3
A	LUKE	96/02/05	FORMAL RELEASE	X	30-100	±0.3	2000-	±2.0	SHEET 1 of 1
Rev.	Initiator	Date	Description	ECR NO.	100-300	±0.5	ANGLE	±0.5°	

Part Name:SUB_ASSY_OPTICAL_4200MP.PRT   Drawing Name:SUB_ASSY_OPTICAL_5100MP.DRW

L04-3016F3 Rev.C

Note: Please refer to RSPL to updated part numbers.

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	23.87T19G001	B	UNAXIS 56MM R64G54 (NDG22) B51R6	1
2	52.83615G001	A	COLOR WHEEL DISC RUBBER, EzPro	6
3	61.82B14G001	A	COLOR WHEEL HOLDER SECC 1.2t 5	1
4	61.83628G002	A	COLOR WHEEL SHOULDER SCREW NIC	3
5	80.82B09G001	B	PCBA PHOTO SENSOR BD 5100MP	1
6	85.1A326G040	A	SCREW PAN MECH M2.6×4 BLACK	1
7	51.82B62G001	A	MYLAR FOR COLOR WHEEL HOLDER 5	1

SCALE 1.000

DRAWN LUKE 96/02/05 — Coretronic Corporation
NAME : ASSY COLOR WHEEL MODULE HD81-LV
TITLE HD81-LV PART NO. 70.87T11G001 Rev.A
SCALE 1:1 UNIT mm A3 SHEET 1 OF 1

Part Name:85H-REAR-MODULE.PRT   Ver:D1/15+/Design   Drawing Name:85H-ASSY-REAR-COVER-MODULE.DRW
L04-3016F3 Rev.C

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	51.85H27G001	A	MAINBOARD CNN MYLAR HD81	1
2	80.87T01G001	B	PCBA FORMATTER BOARD FOR HD81-LV	1
3	61.R0I09G001	B	HEX SPACER M3 W5mm L20mm COPPE	1
4	86.0A123G024	A	HEX NUT M3×0.5P L2.4 Ni	1
5	52.85H04G002	A	TOP COVER SPONGE 60mm HD81	1

SCALE 1:2

DRAWN LUKE 96/02/05 — Coretronic Corporation
NAME : ASSY PCBA FORMAT BOARD MODULE
TITLE HD81-LV PART NO. 70.87T12G001 Rev.A
SCALE 1:1 UNIT mm A3 SHEET 1 OF 1

Part Name:85H-PCBA-MODULE.PRT   Ver: / /   Drawing Name:85H-ASSY-FORMAT-BD-MODULE.DRW
L04-3016F3 Rev.C

Note: Please refer to RSPL to updated part numbers.

ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	51.85H27G001	A	MAINBOARD CNN MYLAR HD81	1
2	80.87T01G001	B	PCBA FORMATTER BOARD FOR HD81-LV	1
3	61.R0109G001	B	HEX SPACER M3 W5mm L20mm COPPE	1
4	86.0A123G024	A	HEX NUT M3×0.5P L2.4 Ni	1
5	52.85H04G002	A	TOP COVER SPONGE 60mm HD81	1

SCALE 1:2

DRAWN	LUKE	96/02/05	Coretronic Corporation
ENG.			
CHK.			NAME :
APPD.			ASSY PCBA FORMAT BOARD MODULE
TITLE	HD81-LV		PART NO. 70.87T12G001 Rev.A

LIMITS UNLESS OTHERWISE NOTED		
1-6	±0.1	300-1000	±0.8
6-30	±0.2	1000-2000	±1.2
30-100	±0.3	2000-	±2.0
100-300	±0.5	ANGLE	±0.5°

A	LUKE	96/02/05	FORMAL RELEASE	X
REV	INITIATOR	DATE	DESCRIPTION	ECR NO.

SCALE 1:1 UNIT mm MATERIAL FINISH A3 SHEET 1 OF 1

Part Name:85H-PCBA-MODULE.PRT   Ver: / /   Drawing Name:85H-ASSY-FORMAT-BD-MODULE.DRW

L04-3016F3 Rev.C

Note: Please refer to RSPL to updated part numbers.

Reader's Response

Dear Readers:

Thank you for your backing our service manual up. In order to refine our content of the service manual and satisfy your requirement. We expect you can offer us some precious opinions for reference.

Assessment:

A.   What do you think about the content after reading HD81/HD81-LV Service Manual?

Unit	Excellent	Good	Fair	Bad
1. Introduction				
2. Disassembly Procedure				
3. Troubleshooting				
4. Function Test & Alignment Procedure				
5. Firmware Upgrade Procedure				
6. DDC key-in Procedure				
7. Appendix				

B.   Are you satisfied with the HD81/HD81-LV service manual?

Item	Excellent	Good	Fair	Bad
1. Service Manual Content				
2. Service Manual Layout				
3. The form and listing				

C.   Do you have any other opinion or suggestion about this service manual?

_____

_____

Reader's basic data:

Name:		Title:	
Company:			
Add:			
Tel:		Fax:	
E-mail:			

After your finishing this form, please send it back to Coretronic Customer Service Dept. by fax: 886-3-563-5333.